

Volume 10

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

BEFORE THE HONORABLE WILLIAM H. ALSUP

ORACLE AMERICA, INC.,	)	
	)	
Plaintiff,	)	
	)	
VS.	)	No. C 10-3561 WHA
	)	
GOOGLE, INC.,	)	
	)	
Defendant.	)	San Francisco, California
	)	April 27, 2012

**TRANSCRIPT OF JURY TRIAL PROCEEDINGS**

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(Appearances continued on next page)

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**CATHERINE LACAVERA**  
Google Corporate Representative

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P R O C E E D I N G S

APRIL 27, 2012

7:26 a.m.

(Proceedings held in open court, outside  
the presence and hearing of the jury.)

**THE COURT:** Good morning.

All right. Let's get started. Be seated, please.

I have something I want to say first; that is, I made  
a mistake and I want to correct it before we go on.

Near the end yesterday we got into a discussion about  
the ownership of the individual API packages, I think is the  
best way to put it. And Mr. Jacobs had said that Mr. Purcell  
had admitted or said that they were not disputing ownership of  
the copyrights, and I said that I wasn't going to hold  
Mr. Purcell to that.

Now, I am going to retract that. I am not going to  
rule one way or the other on it. I want to put that back as an  
open question. I had in mind a different colloquy, and I went  
back and got my law clerk to pull out the actual colloquy. And  
I did read it between then and now, and I, frankly, admit that  
I had the wrong scenario in mind.

So I'm not saying that I am going to hold Mr. Purcell  
and Google to what they said, but I am going to leave that  
open, and if there were a motion, then we would brief it and go  
through the whole process. It would be a number -- a number of

1 portions to take into account, but I think I too quickly ruled  
2 off the top of my head, and that was not fair to Oracle,  
3 especially because I had the wrong -- I had in mind a different  
4 colloquy than the one that you were actually talking about.

5 Now that I've read the one that you were actually  
6 talking about, I think it's a closer question, and I would  
7 leave it open for further motion practice before I made a  
8 ruling on it.

9 So, again, I want to be clear. I'm not ruling in  
10 Oracle's favor on this, but I'm not also not ruling in Google's  
11 favor on this, and it's an open question as to what the legal  
12 purport is of Mr. Purcell's flat out statement:

13 "Your Honor, we are not disputing ownership of  
14 the copyrights."

15 So that is -- and that was in the context of a very  
16 concrete statement by Mr. Jacobs about finding out whether  
17 there was an ownership dispute on the 37 API packages.

18 All right. So we'll leave that back to square one,  
19 so to speak.

20 All right. Next point is, I received your -- your  
21 three pointers, and I've read them, and we'll talk about that  
22 at 2:15.

23 I said yesterday that I was sustaining all the  
24 objections to the designations of Mr. Ellison's deposition, but  
25 I neglected to give you back your packets, so I will do that at

1 this time.

2 (Whereupon documents were tendered  
3 to counsel.)

4 **THE COURT:** Beyond that, I don't have anything to  
5 bring up with you. So can I help you this morning?

6 **MR. JACOBS:** Thank you, your Honor.

7 Further to ownership and registration and other  
8 formalities, let me first cover a couple of things to try to  
9 narrow the scope of issues in dispute, generally and with  
10 respect to ownership.

11 We no longer seek a package-by-package ruling on  
12 infringement as it relates to the code. So looking at  
13 Question 2 of the proposed verdict form, which was  
14 package-by-package for the code rulings on Structure, Sequence  
15 and Organization, we no longer seek such a determination.

16 **THE COURT:** On the code part?

17 **MR. JACOBS:** Correct.

18 **THE COURT:** How about the document part?

19 **MR. JACOBS:** On the document part, we're going to  
20 urge that that be treated similarly to the 37 code packages,  
21 but pending a determination on that. Right now the only way  
22 the Court is potentially giving us a verdict on documentation  
23 is package-by-package, and so we need to understand how the two  
24 issues relate.

25 And let me -- to state it simply. We seek a ruling

1 on documentation copying. If that ruling comes in the context  
2 of 37 packages, that would suffice. We don't need  
3 package-by-package rulings on the documentation, but we do need  
4 a ruling on the documentation. So that's where we are on that.

5 **THE COURT:** So how would -- in your ideal world, how  
6 would the question go to the jury?

7 **MR. JACOBS:** The question would be in the form of:  
8 Did Google copy the API package documentation into its  
9 documentation -- did Google infringe by copying the API  
10 documentation into its API documentation?

11 Now, whether it says -- there's another lurking  
12 subsidiary issue, which is the Structure, Sequence and  
13 Organization for that copying or something else, and that's an  
14 issue we will be discussing with your Honor at 2:15, also.

15 **THE COURT:** And what would you say is the -- it's  
16 compared to the work as a whole? Compared to what? What is  
17 the comparison to?

18 **MR. JACOBS:** Well, we would have it be coextensive  
19 with work as a whole determination as to the code packages.  
20 So, in other words, if we're -- if the Court said 37, as  
21 against 166, for the code packages, we would say the same would  
22 be true for the documentation.

23 **THE COURT:** All right. Let's take a much simpler  
24 formula. It has elegance. I like that part, but I'm not  
25 making any rulings on that.

1           **MR. JACOBS:** Understood, your Honor.

2           **THE COURT:** Okay. So, in that event then, Question 2  
3 would fall away completely.

4           **MR. JACOBS:** Question 2 would fall away, I believe,  
5 your Honor, yes.

6           **THE COURT:** All right. All right, we'll take that up  
7 at 2:15, but that will help simplify things when we get there.  
8 Maybe that's the way to go.

9           **MR. JACOBS:** So the next point is that, to the  
10 extent -- well, let me just say it more simply.

11           We withdraw the characterization of the registration  
12 as a collective work. We don't need that characterization. I  
13 don't think there has been any reliance on that  
14 characterization, and as we looked at the documentation  
15 associated with the registration, there is a transmittal letter  
16 that says we're rigging this as a derivative work. So we  
17 withdraw the characterization of it as a collective work.

18           The next point is to offer into evidence some  
19 exhibits and to draw whatever objection we're going to draw,  
20 and then seek your Honor's guidance as to how to proceed.

21           So the first is Exhibit 1078.

22           **MR. VAN NEST:** Excuse me, your Honor. Before we  
23 begin, if I may?

24           **THE COURT:** Sure.

25           **MR. VAN NEST:** I'd like to have just a moment or two

1 to confer. What I am questioning now is, I didn't know until  
2 the moment Mr. Jacobs stood up that they were going to withdraw  
3 the compilation. We had been talking about that, but there has  
4 been no determination. And I want to make sure that I  
5 understand and we understand and Mr. Jacobs understands, what  
6 do they need to prove now, if that's out of the case.

7 And so with respect to documents, I think it might  
8 make sense for us to confer for a moment. Otherwise --

9 **THE COURT:** All right.

10 **MR. VAN NEST:** (Continuing) -- there may be a lot of  
11 this that we don't need to deal with.

12 **THE COURT:** How long do you need to confer, five  
13 minutes?

14 **MR. VAN NEST:** I think so.

15 **THE COURT:** All right. I'll come back in five  
16 minutes.

17 **MR. BABER:** Your Honor, a second point.

18 **THE COURT:** Yes.

19 **MR. BABER:** They sent us a ton of new exhibits last  
20 night. Before he asks to introduce any of them, can they give  
21 us copies of each one? I haven't had a chance to look at all  
22 of them. It's tons and tons of stuff.

23 **THE COURT:** Are these brand-new exhibits never before  
24 designated?

25 **MR. VAN NEST:** Many of them are, your Honor. Many of



1 them are brand-new, not in the trial exhibit list. We're not  
2 raising that objection yet because I do want to work with  
3 counsel. But maybe we need 10 minutes just because...

4 **THE COURT:** All right. Ten minutes. Thank you.

5 (Whereupon there was a recess in the proceedings  
6 from 7:36 a.m. until 7:45 a.m.)

7 **MR. JACOBS:** One comment that I should have made  
8 earlier on the selective work issue is that Google had disputed  
9 our characterization on the collective work, and that's also  
10 part of the basis for our withdrawal of that characterization  
11 and assertion that it's a derivative work.

12 **MR. BABER:** I can do a response to Mr. Jacobs or to  
13 the documents, whatever your Honor prefers.

14 **THE COURT:** I'm going to stand mute on this. I'm not  
15 going to make any comments about whether it's derivative,  
16 compilation, collective or otherwise. I learned my lesson  
17 yesterday. So the chips will fall where they may, and I'm --  
18 there we go.

19 Next.

20 **MR. BABER:** Let me state an issue that we're in  
21 agreement with Mr. Jacobs on, which is what he talked about on  
22 the verdict form, where we go with this.

23 If the 37 packages by package go out for Question 2a,  
24 and he wants to do his documentation based on whatever you  
25 conclude is the work as a whole, whether it's the whole 166 or

1 something else, we absolutely agree that that's a good idea,  
2 not just for simplicity, but also for consistency, so that at  
3 least the jury is applying the same work as a whole, for them,  
4 to as many issues as possible.

5 We think that's a good thing, and I agree with his  
6 analysis as to the effect of what they are doing on that part  
7 of the verdict form.

8 **THE COURT:** Thank you. So, documents, let's go back  
9 to the documents you want to get in evidence.

10 **MR. JACOBS:** Yes. Here are the ones that are agreed  
11 to: 465 --

12 **THE COURT:** 465.

13 **MR. JACOBS:** (Continuing) -- 466, 467 -- let the  
14 record reflect that Mr. Baber is standing with me here -- 468,  
15 469, 470, 471, 472, 477, 478, 479 -- look at the collaboration  
16 here, your Honor -- 480, 481, 482, 483, 484, 485, 486, 487,  
17 488, 489 --

18 I don't know if you saw this one.

19 **MR. BABER:** No, I did not.

20 **MR. JACOBS:** 489 is not agreed to.

21 **THE COURT:** Which one?

22 **MR. JACOBS:** 489 is not agreed to.

23 **THE COURT:** So up to 488, okay.

24 **MR. JACOBS:** Those are the ones that are agreed to,  
25 your Honor.

1           **MR. BABER:** No objection.

2           **THE COURT:** All right, fine. All those are now in.

3           (Trial Exhibits 465, 466, 467, 468, 469, 471, 472,  
4           477, 478, 479, 480, 481, 482, 483, 484, 485, 486,  
5           487, 488 received in evidence)

6           **THE COURT:** 1078 you started with, but that's not yet  
7 agreed to.

8           **MR. JACOBS:** We'll do that now, your Honor.

9           **THE COURT:** You will do that with a witness then?

10          **MR. JACOBS:** Well, let me just be clear on what it  
11 is, and then -- because I'm going to ask your Honor for, to do  
12 this out of the presence of the jury or for additional time.

13          Actually, for the avoidance of doubt, your Honor, we  
14 would ask that these be moved into evidence as part of a  
15 reopening of our case-in-chief.

16          **THE COURT:** Which ones?

17          **MR. JACOBS:** All the ones I just gave you and the  
18 ones I'm about to give you.

19          **THE COURT:** And the basis for -- see, I have no idea  
20 what these document are. The basis for reopening is?

21          **MR. JACOBS:** The basis for reopening is that these go  
22 to ownership as part of the JCP process, and the other aspects  
23 of ownership of the platform in question, the issue that was  
24 raised in the colloquy.

25          **THE COURT:** So any objection to reopening for that

1 purpose?

2           **MR. BABER:** No objection to reopening for that  
3 purpose, your Honor, with the caveat -- I heard Mr. Jacobs say  
4 he's going to ask for more time -- that if he gets more time,  
5 and that is for his case-in-chief, that we should get the same  
6 amount of additional time in our case, if any.

7           **THE COURT:** I haven't given any more time yet, so  
8 we'll have to deal with that separately.

9           **MR. JACOBS:** So, your Honor, we would offer into  
10 evidence Trial Exhibit 1078.

11           (Whereupon, document was tendered  
12 to the Court.)

13           **THE COURT:** It is a letter to the Copyright Office  
14 with a received stamped on it for Java 2 Standard Edition 5.

15           Is this the one where the Copyright Office did not  
16 have such a document?

17           **MR. JACOBS:** This --

18           **MR. BABER:** This --

19           **MR. JACOBS:** This letter is not in the official file  
20 history. What this letter shows is that --

21           **THE COURT:** I see what it shows. It shows that it  
22 was submitted.

23           **MR. JACOBS:** Exactly. The CD-ROM in particular, your  
24 Honor, which is where we're going with this.

25           **THE COURT:** The objection to this is what?

1           **MR. BABER:** I have three objections, your Honor.  
2 Number one is hearsay.

3           Number two, lack of foundation, no witness has  
4 testified to what this is.

5           And number three, it's incomplete. To the extent  
6 that they want to use this to show there was a disc, it should  
7 be accompanied by the disc and some testimony that this is the  
8 disc. I understand we're going to come to a disc in just a  
9 moment, and I have been told it's a full reconstruction --

10           **MR. JACOBS:** No, it --

11           **MR. BABER:** I'm sorry.

12           **MR. JACOBS:** The CD-ROM is a reproduction of the  
13 CD-ROM that is in the official file. We have the official file  
14 with us, with the original CD-ROM, in court.

15           **MR. BABER:** And we think that needs to be  
16 authenticated, your Honor.

17           **THE COURT:** Why don't you bring in Ines Gonzalez?

18           **MR. JACOBS:** Well, we will be bringing in the  
19 custodian of these files at Oracle, your Honor. She's ready to  
20 testify.

21           Ms. Gonzalez is at Fenwick, and Fenwick withdrew from  
22 the representation of Oracle because of an ethical conflict.

23           **THE COURT:** That wouldn't preclude her as being a  
24 witness.

25           **MR. BABER:** Your Honor, these are business records of

1 the law firm, not of Oracle or of Sun.

2           **MR. JACOBS:** The witness will testify, your Honor,  
3 that, on account of the conflict, the files were transferred to  
4 Oracle for safekeeping, and the witness is the keeper of the  
5 copyright and legal department files of relevancy here and has  
6 personally inspected them.

7           **THE COURT:** Mr. Baber.

8           **MR. BABER:** Yes, your Honor.

9           **THE COURT:** Do you really want me to instruct the  
10 jury, to explain to the jury, that we're bringing these  
11 witnesses in because you dispute this? I don't think you  
12 really want me to do that. And even if I don't do that, do you  
13 want the jury to think that your case turns on whether or not  
14 this document was submitted to the Copyright Office?

15           **MR. BABER:** No, your Honor. The case doesn't turn at  
16 all on whether it was or wasn't submitted to the Copyright  
17 Office. What the case turns on --

18           **THE COURT:** Why are you making a big deal out of  
19 this?

20           **MR. BABER:** Because, your Honor, the certified  
21 records of the Copyright Office say there was no disc, and all  
22 we need -- we don't need necessarily all of this. We just need  
23 a witness who will say, yes, some disc that's in evidence is  
24 "the same as," that they had a disc from back then, or if  
25 someone can testify under oath that, "this is what the work was

1 at the time we registered it," that's all they need. It's not  
2 whether or not this is the same disc, et cetera. It just has  
3 to have the same contents.

4 **THE COURT:** Who is Marilyn E. Waglinski (phonetic  
5 spelling).

6 **MR. BABER:** I believe she was an attorney at  
7 Fenwick & West at the time, your Honor.

8 **THE COURT:** Is Ms. Ines Gonzalez available?

9 **MR. JACOBS:** Your Honor, honestly, because of the  
10 conflict, Fenwick transferred the files over, and we haven't --  
11 I don't know if Ms. Ines Gonzalez is available. As I say --

12 **THE COURT:** Well, the mere fact that somebody at  
13 Oracle has a custodian of records, I'm not going to rule "yes"  
14 or "no" on that right now. But that is -- that theory could  
15 get into evidence all kinds of mischief, and I think it would  
16 be better to bring in Ms. Gonzalez.

17 And her conflict of interest in no way prevents her  
18 as a witness from testifying. That's not a conflict,  
19 testifying as to what happened?

20 **MR. JACOBS:** Your Honor, I would offer 1078 as a  
21 self-authenticating document that has, on its face, indicia of  
22 authenticity. It has the received stamp from the Copyright  
23 Office.

24 We are offering 1078 into evidence solely for the  
25 purpose of showing that, in fact, with the registration

1 application for Version 5 of the Java 2 Standard Edition, a  
2 CD-ROM was submitted, and we are submitting the CD-ROM to show  
3 what the deposit material was. And it seems -- if there is an  
4 issue of authenticity of the document, we have the original  
5 file in court, and that can be inspected. And it seems that to  
6 try and get Ms. Gonzalez here to prove what is stunningly  
7 obvious is not what's required by the Federal Rules of  
8 Evidence.

9 **MR. BABER:** Excuse me, your Honor.

10 **THE COURT:** Yes.

11 **MR. BABER:** They are clearly offering this for the  
12 truth of its contents to show that a disc was submitted --  
13 whether it's -- clearly it appears to be an accurate copy of a  
14 letter that someone in a law firm wrote to a client at some  
15 point. That's hearsay. If offered for the truth --

16 **THE COURT:** No, wrote to the Register.

17 **MR. BABER:** I'm sorry. Wrote to the Register of  
18 Copyrights.

19 **THE COURT:** Yes. So the, the hearsay part is not  
20 that part. The part that's the issue is, was there, in fact, a  
21 CD-ROM included, and what was on it, if it was included.

22 **MR. BABER:** Exactly right, your Honor.

23 **THE COURT:** And that is not something that I feel you  
24 can just take as self-authenticating from the face of the  
25 letter.



1 I'm not going to rule on this right now. I'm going  
2 to rule tentatively no. I think you need to do this the right  
3 way and not just shovel stuff in on the theory that the other  
4 side is being unreasonable, which possibly they are. And I  
5 don't like that either, but they have got the right to be mean  
6 and nasty if they want to be mean and nasty, which is,  
7 Mr. Baber, what I think is going on here because you know good  
8 and well she would come in and testify that this letter is true  
9 and correct.

10 But I am not going to say you're wrong as a matter of  
11 law on your objection. So I would have to have briefing and  
12 some good case law that said I can overrule Mr. Baber's  
13 objection.

14 **MR. JACOBS:** The briefing I can't give you. I think  
15 I can give you some case law. *MRT Construction versus Hard*  
16 *Drives, Inc.*, 158 F.3d, 478, 483. It's a Ninth Circuit case.

17 **THE COURT:** What does it say?

18 **MR. JACOBS:** It's a business records case, your  
19 Honor, that says when a business receives business records from  
20 another -- from another, and those records are then kept in the  
21 regular course of that business, relied on by that business,  
22 and the business has a substantial interest the accuracy of the  
23 records, the fact that those records came originally from  
24 someone else doesn't defeat admissibility as a business record.

25 And that is exactly what this is. This is a file

1 that the outside law firm transferred to Oracle on account of a  
2 conflict of interest. The records are then maintained at  
3 Oracle. And the custodian is here to testify to that.

4 At 483, your Honor.

5 **THE COURT:** You're not explaining to me why you can't  
6 get Ms. Gonzalez here. You keep vaguely referring to a  
7 conflict, and I keep telling you that that conflict does not  
8 prevent anyone from testifying to the truth. And you're  
9 avoiding that.

10 **MR. JACOBS:** I'm only avoiding it because it's --

11 **THE COURT:** I'm not going to rule -- look --

12 **MR. JACOBS:** Okay, fine.

13 **THE COURT:** I'm not going to go down that path until  
14 you tell me she is unavailable as a witness.

15 **MR. JACOBS:** Understand, your Honor.

16 **THE COURT:** And I mean that you tried to subpoena her  
17 and she refuses to come.

18 **MR. JACOBS:** Okay. That will then -- the same --  
19 just for the sake of good order, we would offer 1076, which is  
20 the CD-ROM itself.

21 **THE COURT:** Yes. Same ruling.

22 **MR. JACOBS:** 1077, which is a reproduction of the  
23 front and back cover of the -- of that which was submitted with  
24 the CD-ROM.

25 **THE COURT:** Same ruling.

1           **MR. JACOBS:** And then 81, which is the transmittal  
2 notice for Java 2 Standard Edition 1.4, which notes that the  
3 online end-user documentation is being submitted on CD-ROM.  
4 Also, a letter from Fenwick & West to the Register of  
5 Copyrights.

6           **THE COURT:** Are there any other documents that we  
7 have that are in evidence and have this same stamp that looks  
8 the same from the Copyright Office?

9           **MR. BABER:** I don't believe so, your Honor. I  
10 wouldn't swear to it, but I believe these are the first of the  
11 documents anything like this that we have seen.

12           **MR. JACOBS:** And I don't know, your Honor.

13           **THE COURT:** Hmm.

14           **MR. JACOBS:** I don't know.

15           **THE COURT:** All right.

16 (Discussion held off the record  
17 amongst counsel.)

18           **THE COURT:** Okay. Well, we have a hanging issue  
19 there.

20           **MR. BABER:** Same objections, your Honor, to 1081.

21           **THE COURT:** All right. Those four documents are in  
22 limbo for now. But I don't think they -- I'm not ruling, but I  
23 question the adequacy of the foundation to put those in  
24 evidence.

25           **MR. JACOBS:** And just to be perfectly clear for the

1 record, the custodian of records at Oracle is prepared to  
2 testify that these are maintained in the ordinary course of  
3 business. I understand that --

4 **THE COURT:** I'm not permitting you from bringing  
5 in -- let me be clear. You can bring that person in, have them  
6 testify. I will consider their testimony. But you're asking  
7 for an advisory ruling.

8 My advisory ruling to you is that may not be enough,  
9 but if you want to try it, but please don't go up to the Court  
10 of Appeals and say the judge refused to even consider that  
11 evidence. I'm not going there. You can bring that person in,  
12 use up your time on them, and I will rule at that point.

13 **MR. JACOBS:** Thank you, your Honor.

14 **THE COURT:** I'm not -- I'm not ruling it out yet.  
15 I'm just not ruling it in based on a proffer.

16 Okay. What else can I do for you this morning?

17 **MR. NORTON:** Just one matter, your Honor. Yesterday  
18 afternoon we handed up the video designations for Mr. Gupta,  
19 and we don't need to play those until we get to our rebuttal  
20 case.

21 **THE COURT:** Didn't I give you those?

22 **MR. NORTON:** You gave us Mr. Agarwal's, and you  
23 handed back Mr. Ellison's, but I don't believe we received back  
24 those from Mr. Gupta. They had purple-tape flags, your Honor.

25 **THE COURT:** My law clerk is going to have to help me

1 find those. I remember it, but I don't see it anywhere.

2 Let me ask Dawn: Did you get the juror's note? You  
3 weren't here whenever I put it on the witness stand.

4 **THE CLERK:** I did get it.

5 **THE COURT:** All right. What else can I do for you?

6 **MS. ANDERSON:** Your Honor, just two small procedural  
7 matters.

8 **THE COURT:** Sure.

9 **MS. ANDERSON:** We marked for identification in the  
10 record, TX3533, which was the impeachment video played during  
11 Mr. McNealy's testimony. And we also marked TX3531, which were  
12 the deposition clips from Craig Gering, impeachment testimony.  
13 I want to submit that to the Court, your Honor.

14 **THE COURT:** Are you suggesting that this comes into  
15 evidence?

16 **MS. ANDERSON:** No, your Honor. This is just the  
17 procedure that we have been following --

18 **THE COURT:** So that will just be for the Court of  
19 Appeals.

20 **MS. ANDERSON:** Yes. Thank you, your Honor.

21 **THE COURT:** What else?

22 (No response.)

23 **THE COURT:** All right. My law clerk has discovered  
24 the Gupta -- it doesn't say Gupta on here. It says Agarwal.

25 **MR. BOIES:** I apologize, your Honor.

1           **THE COURT:** I see. The tab something says something  
2 else, but the inside says Gupta. Thank you. I can figure it  
3 out.

4           Okay. What else can I do for you?

5           (No response.)

6           **THE COURT:** Are we ready to go?

7           **MR. BABER:** Ready, your Honor.

8           **THE COURT:** Are the jurors present?

9           Where is our witness?

10          **MR. BABER:** Professor Astrachan?

11          **THE COURT:** Yes. Let's bring him in.

12          (Jury enters at 8:05 a.m.)

13          **THE COURT:** Okay. Welcome back and please be seated.

14          We're going to start with Mr. Baber.

15          Do you have water -- is that your water?

16          **THE WITNESS:** I do. Thank you very much.

17          **THE COURT:** Okay. Good.

18          Everybody over there in the jury box feeling okay  
19 today?

20          (Jury nodding affirmatively.)

21          **THE COURT:** Everyone says yes.

22          Got your notepads ready?

23          One of you have gave us a note which I have read to  
24 the lawyers and they have now read. Thank you for that note,  
25 and the lawyers will try to have it answered in due course.

1 Mr. Baber, you may begin.

2 OWEN ASTRACHAN,

3 called as a witness for the Defendant herein, having been  
4 previously sworn, resumed the stand and testified further as  
5 follows:

6 DIRECT EXAMINATION RESUMED

7 BY MR. BABER:

8 Q. Good morning, Professor Astrachan.

9 A. Good morning.

10 Q. Yesterday in your testimony you spoke about the  
11 specification for an API, for a method. Do you recall that  
12 testimony?

13 A. Yes.

14 Q. And I believe you said that the specification includes  
15 both the Method signature and documentation written in English  
16 that explains the method; was that your testimony?

17 A. Yes.

18 Q. Okay. Does the specification for a method say what code  
19 to write in the implementation of that method?

20 A. No, it does not.

21 Q. Okay. And why not?

22 A. The implementation of the method is something that the  
23 programmer who's implementing the API would need to think about  
24 and understand and might be very, very complicated, so the  
25 specification just tells you how you would call it if you were

1 writing a client program to call into the API, but not at all  
2 how to write the implementation.

3 Q. Okay. So let's break that down into two different  
4 questions.

5 For someone who is trying to implement that method to  
6 write new code that will actually perform the function if it's  
7 called, does the specification tell that programmer what code  
8 to write in the new implementation?

9 A. No, it does not tell how to write the implementation.

10 Q. Does it tell the person creating the implementation what  
11 the code has to do?

12 A. Yes. It tells the specification -- including the  
13 signature -- and the written comment tells what the code should  
14 do.

15 Q. Does it tell that person who's an implementation what code  
16 to write in order to do that?

17 A. No, it does not tell them what code to write.

18 Q. All right. Now, once the method has been implemented in  
19 new source code, does the specification tell the programmer  
20 who's writing an application and who wants to call on that  
21 prewritten code, does it tell that programmer what code to  
22 write?

23 A. The specification does tell the programmer what to write,  
24 how to call the method that has been implemented.

25 Q. And for someone who wants to use the method, who wants to



1 use that prewritten code, does she or he have to write that  
2 Method signature exactly as it appeared in the specification?

3 **A.** Yes, exactly.

4 **MR. JACOBS:** Your Honor, leading.

5 **THE COURT:** Sorry?

6 **MR. JACOBS:** It is leading.

7 **THE COURT:** All right. It is leading. So try not to  
8 lead your own witness.

9 It's okay to lead someone who is not on the same side  
10 as you are, because that is a hostile witness, so to speak, and  
11 will not be amenable to leading. But when somebody is on the  
12 same side there is a danger that the witness will simply say  
13 yes to everything that the lawyer says; yes, yes, yes. But  
14 whenever they are on opposite sides you don't have that problem  
15 so it's okay to lead.

16 I have been meaning to explain this to you because  
17 sometimes the jury thinks that lawyer was objecting all day  
18 long about the other side leading, and then when they got up  
19 that's all they did was lead. Well, it's actually okay to do  
20 that. It's not inconsistent because if you are affiliated with  
21 that side, you shouldn't lead except on preliminary matters.  
22 That's okay.

23 But when you get to something that matters, you  
24 should not lead. You should say, "What happened next?" Or,  
25 "What about this?" Or, "What, if any..." Or, "When..." Or,

1 "Who..." but not, "Isn't it true that..."

2 Now, if the question is not objected to, it's up to  
3 you, over there in the jury box, to decide how much weight to  
4 give to it, but I commend to you the idea that if a lawyer is  
5 leading their own witness, you might question whether or not  
6 it's the lawyer testifying versus the witness. It's up to you  
7 to decide whether that's true or not.

8 Again, I say to you, though, on something that's  
9 preliminary and not really in controversy, I encourage the  
10 lawyers on both sides to lead so we can get to the point. But  
11 once we get to the point, if that witness is affiliated with  
12 you, the lawyers should stop leading and should ask a "what,  
13 who, why" question, as opposed to "isn't it true that"  
14 question.

15 You all over there understand that point?

16 (Jury nodding affirmatively.)

17 **THE COURT:** Okay. That's what the leading problem  
18 is.

19 I'm sorry for the interruption, Mr. Baber. It's okay  
20 for you to lead on matters that are preliminary, but on  
21 something that really matters in the case, you should ask a  
22 "what, who, why" question. So there we go. Thank you.

23 Please proceed.

24 **MR. BABER:** Thank you, your Honor.  
25

1 BY MR. BABER

2 Q. So just to rephrase, Professor, for a programmer who is  
3 trying to use the method that's been implemented to access that  
4 prewritten code, does the Method specification, does it say to  
5 the programmer what he or she has to write in their code or  
6 doesn't it?

7 A. The Method specification tells the programmer exactly what  
8 to write in the code that they implement to call the library.

9 Q. Now, is it possible to have more than one implementation  
10 of some method that's been defined in a specification?

11 A. Yes, it's possible to have alternate implementations of a  
12 library, of a specification in an API.

13 Q. And during the trial have you heard testimony of  
14 implementation of all of these methods by Sun?

15 A. Yes. I think I was in trial when we saw both Dr. Bloch  
16 and somebody else give two implementations.

17 Q. And have we seen here in the courtroom, in the last week,  
18 creation of two -- have we or have we not seen anything in the  
19 courtroom in the last week that relates to different  
20 implementations of the same method?

21 A. We've seen two implementations of the max method of the  
22 Math class in the java.lang API.

23 Q. And which was the first time we saw that?

24 A. We saw Dr. Bloch implement Math.max.

25 Q. And you are referring to the chart that Dr. Bloch drew,

1 Exhibit 3452?

2 A. That looks right to me.

3 Q. And which part of this exhibit is the implementation that  
4 Dr. Bloch created?

5 A. You can tell the implementation because it's between the  
6 left curly brace and right curly brace. It starts with "if,"  
7 and then arg1 greater than arg2. That's the implementation  
8 that he wrote for that API, that method.

9 Q. So, in other words, everything below the black box that  
10 says "declaration," is that or is that not Dr. Bloch's  
11 implementation?

12 A. That is Dr. Bloch's implementation.

13 Q. And did we see a second example of that in the courtroom  
14 this week?

15 A. Yes, we did.

16 Q. What is that?

17 A. We saw another implementation that was different.

18 Q. And who did that?

19 A. I can't remember who did that. You're going to remind me  
20 perhaps. There were a lot of people I saw.

21 Q. Well, I'm showing you a chart that was marked as  
22 Exhibit 3525. Is that the -- if you don't remember the  
23 witness's name, but is that what you're recalling?

24 A. Yes. I can see it from here.

25 Q. And on this Exhibit 3525, where is the implementation that

1 was created by the witness?

2 **A.** It's over there in the right-hand column where it says  
3 "return x greater than y." Starting right there.

4 **Q.** (Indicating.)

5 **A.** Yeah, between your fingers. That's it. That is the  
6 implementation of that method.

7 **Q.** Again, from the end of the method signature there is a  
8 curly bracket. From that curly bracket to the next curly  
9 bracket, that's the implementation?

10 **A.** Yes. I believe that was Mr. Bornstein that did that.

11 **Q.** And we also have in the record, Professor Astrachan --

12 **MR. BABER:** May I approach, your Honor?

13 (Whereupon, document was tendered  
14 to the witness.)

15 **BY MR. BABER**

16 **Q.** I put before you Exhibit 623.101, and ask you if you can  
17 identify it?

18 **A.** Yes.

19 **Q.** And what is that exhibit?

20 **A.** This is the implementation of the class Math from the  
21 java.lang package.

22 **MR. BABER:** Move the admission of that exhibit, your  
23 Honor.

24 **THE COURT:** Any objection to that one, 623.101?

25 **MR. JACOBS:** No, your Honor.

1           **THE COURT:** Received in evidence.

2           (Trial Exhibit 623.101 received  
3           in evidence)

4 **BY MR. BABER**

5 **Q.** And can you tell us where in that document --

6           **MR. BABER:** Can we display it to the jury, your  
7 Honor?

8           **THE COURT:** Of course.

9           (Document displayed)

10 **BY MR. BABER**

11 **Q.** Can you tell us where in that document is the  
12 implementation from the Java Platform of the max method?

13 **A.** Well, you will have to look through it to find max. I  
14 don't have a search capability here. Perhaps the person using  
15 the computer does, so the jury can see it.

16           I would look through to find max. I have seen it.  
17 I found it. It's on Page 15 of 24.

18 **Q.** Could you just read into the record what that  
19 implementation says?

20 **A.** That implementation says: "Return, left paren, A greater  
21 than or equal to B, right paren, question mark, A colon, B  
22 semicolon."

23 **Q.** Is that implementation of this same method different from  
24 Dr. Bloch's, and is it -- is it, or is it not, different from  
25 Dr. Bloch's and different from Mr. Bornstein's?

1 A. It is different than both of them.

2 Q. Okay. Could you also look at the second exhibit I've put  
3 in front of you, which is Exhibit 47.101.

4 Can you identify that?

5 A. This is the Android implementation of the Math class in  
6 java.lang.

7 MR. JACOBS: No objection.

8 MR. BABER: Thank you.

9 BY MR. BABER

10 Q. And can you find in that exhibit --

11 MR. BABER: Can we display that to the jury, your  
12 Honor?

13 (Document displayed)

14 THE CLERK: Is it received, Judge?

15 THE COURT: It's in evidence, 47.1.

16 MR. BABER: .101.

17 THE COURT: .01?

18 MR. BABER: Yes. Mr. Jacobs just said, "No  
19 objection."

20 THE COURT: All right. That's fine. In evidence.

21 (Trial Exhibit 47.101 received

22 in evidence)

23 BY MR. BABER

24 Q. And in that exhibit can you find the Android  
25 implementation of the max method?

1 A. Yes, I have found it.

2 Q. Can you read it into the record, please?

3 A. It says: "Return, I1 greater than I2, question mark, I1,  
4 colon, I2, semicolon."

5 Q. Professor Astrachan, the four different implementations  
6 that you just talked about for the same method, for the max  
7 method, this one is Dr. Bloch's; is that right?

8 A. That's correct.

9 Q. And this one is?

10 A. I think that one is Mr. Bornstein's.

11 Q. And this one is?

12 A. That is the Android implementation.

13 Q. Okay. And this one is?

14 A. That's the Java JDK implementation.

15 Q. And do all four of these different sets of code perform  
16 the function required by the Math -- by the Math method?

17 A. Yes, they all perform that method.

18 Q. Even though there's different characters, different format  
19 in the programming of this, they would take the same input, and  
20 they would provide the correct output, or would they?

21 A. Each one much those would provide the same output given  
22 the same input.

23 Q. In order to create a new implementation of a method that's  
24 been defined in the specification, what, if anything, does the  
25 person creating the new implementation need?



1 A. The person needs the Method specification, the signature,  
2 and the explanation of what that method should do.

3 Q. Anything else?

4 A. They need the ability to be able to do it, but that's all  
5 they need.

6 Q. Can you create an implementation of a method that's been  
7 defined in a specification if you don't have the specification?

8 A. No. You need the specification to be able to create the  
9 implementation.

10 Q. All right. And does requiring the specification have  
11 anything at all to do with whether or not you're trying to do a  
12 clean room implementation or some other kind of implementation?

13 A. If you're going to do a reimplementation, you need all the  
14 Method specifications to be able to do that.

15 THE COURT: Can I ask a question about the  
16 specification? Is that all right?

17 MR. BABER: Yes. Your time or mine, your Honor?

18 THE COURT: Your description made it sound like a  
19 black box, so to speak. There is this black box with something  
20 inside there, and you really don't care so much what's inside  
21 there, but you have an input on this side and an output on that  
22 side, and what the specification does is say what the input has  
23 got to be and what the outputs have got to be. And then what's  
24 in between is the implementation inside that black box. And  
25 what's inside the black box could be several different

1 approaches, but always the input is the same on every black  
2 box, the outputs are the same.

3 How close is that?

4 **THE WITNESS:** That is a very good explanation.

5 **THE COURT:** Do you have any disagreement with what I  
6 said?

7 **THE WITNESS:** No. I like that explanation.

8 **THE COURT:** Okay. There we go.

9 **BY MR. BABER**

10 **Q.** Professor Astrachan, how do programmers who are writing  
11 new applications use an API?

12 **A.** Programmers that are writing new applications to use the  
13 library read the specifications and then use those to write  
14 whatever application they need to leverage the power of the  
15 API.

16 **Q.** And what, if anything, does the person who wants to use  
17 the API need in order to use that prewritten code?

18 **A.** The people writing their own new applications need the  
19 specifications to find out what to send to that black box and  
20 then what they get back.

21 **Q.** And would it be possible, Professor, for you to  
22 demonstrate for the jury and the Court how a programmer would  
23 actually use an API in writing a new program?

24 **A.** I can do that. I can write some code that a programmer  
25 would use, yes.

1 Q. Would it be possible for you to write a program or not?

2 A. I could write a very simple program, yes.

3 MR. BABER: Your Honor, may the professor step down?

4 THE COURT: Of course.

5 (Witness steps down)

6 THE COURT: Do we have a good bold Magic Marker?

7 MR. BABER: We have a brand-new black Magic marker,  
8 and we have a red one.

9 THE COURT: Okay. You can come up, and remember to  
10 keep your voice loud and clear.

11 BY MR. BABER

12 Q. Professor, is there a program that you could write that  
13 would show how programmers would use an API?

14 A. There are many simple programs. I think one program that  
15 might resonate what people do is a program that would go over  
16 the internet, grab a web page and print it, since most people  
17 have used a browser to be online.

18 Using the Java APIs, I can specify a location on the  
19 internet, read the contents of that website, and then cause  
20 them to be displayed on my screen.

21 Q. And how many steps would be in that program that you're  
22 talking about?

23 A. Those three steps that I just talked about, specify where  
24 to go on the internet -- actually, make a connection to that  
25 location on the internet, and then read it, and display it on

1 the screen. Those are the three steps that I'd write in my  
2 program to just illustrate how to call the libraries that are  
3 provided with Android and Java.

4 Q. Okay. Could you do so?

5 A. Yes. We've heard already that the components of an API in  
6 a class in Java include the package and the class and the  
7 method. So if I'm writing a program, I have to -- I have to  
8 write it in a class. That's what Java language requires, that  
9 I write a class. So I'm going to specify the class, and I  
10 specify that by writing kind of a class signature. I will say,  
11 "Public Class WebReader."

12 So I have to specify that it's a class, and I have to  
13 give it a name. I'm going to implement it, so I'm going to put  
14 a curly brace there and a curly brace there because that's  
15 where my code is going to be.

16 And Java requires that all classes be in a package.  
17 So I'm going to name my package at the very top. I'm going to  
18 write Package. And I'm using the name Simple, because this is  
19 a simple example. So I'm in the class WebReader, in the  
20 package Simple, which means using -- well, we've heard this  
21 phrase, java.lang. This would be simple.WebReader. That's  
22 where my code is going to be.

23 (Witness writing on demonstrative.)

24 A. And now I need to write a method --

25 Q. Can I ask my question first, Professor Astrachan. Just so

1 we're clear, even though it has a name of simple.WebReader, is  
2 what you're about to write, does that become a part of the API?

3 **A.** No, this would not be part of the API. This is my own  
4 code I'm going to call into the API. This is not part of the  
5 API. This is --

6 I'm a client programmer. I might have been hired to  
7 write a program to go online. So this is not part of the API.  
8 I'm going to use the power of the API in that library to read a  
9 web page and display it, but this is not part of the API. This  
10 package Simple is not one of the 37 packages that we have heard  
11 about at all.

12 **Q.** Please continue.

13 **A.** Because I'm a careful programmer, I'd like to make this my  
14 work. I'll put a comment in it so that we'll know, and anybody  
15 using this code will know, that it's me. I will put a stylized  
16 comment indicating that this is my work. I will say "@author."  
17 And I'll just write my "OLA," that's my abbreviation for my  
18 name so that I don't have to spend time writing it.

19 This is the comment, and it indicates that I'm the  
20 author of this class and this method. And that way people that  
21 see this code will know that's me. That's not part of the  
22 code. That's just a comment for people reading this to know  
23 that I've wrote it.

24 Now, I need to make -- this is a program, and I'm  
25 sure you've heard of computer programs before. And it turns

1 out that in Java to make a program, as opposed to a library of  
2 classes a program runs, the library is code that's called when  
3 a program runs. And in Java you have to have a special name of  
4 the method that's executed when a program runs.

5 So I would write that. And I know, because I've  
6 written a lot of Java programs, what it -- what this method  
7 signature looks like. It's the Method signature that every  
8 program needs. APIs don't need this Method signature because  
9 they are not programs. They are code that I call.

10 So I just know I'm going to have to write "Public  
11 Static Void Main, parenthesis, String, bracket, bracket, R,  
12 parenthesis, curly brace, curly brace."

13 That's kind of a mouthful, but once you have written  
14 a lot of programs, you just kind of remember that. And  
15 sometimes it might be typed automatically if you've got lucky  
16 by the programming environment you're in.

17 My programming environment is this easel, so I'm  
18 writing it out by hand, "Public Static Void Main." This is the  
19 Method signature for my class so that this code will run on my  
20 computer. It allows Java to run this program.

21 And I still haven't called the API to do the three  
22 things I said it was going to do, which is specify the location  
23 on the internet, open a connection to that location, and then  
24 print the contents of that web object page.

25 So now I'm going to get ready to do that.

1 Q. What would come next in your code?

2 A. I need to specify the location on the internet. That's  
3 called a URL. I know, because I have some experience, that  
4 network stuff in Java is in the java.net package. So I know  
5 what I need is java.net.URL. That's the class that I'm going  
6 to use, java.net.URL.

7 I'm going to specify a website. And the way you  
8 create a new location on the internet is to say "new  
9 java.net.URL." And I have to tell it where to go on the  
10 internet. I'm going to go to CNN.com, so I write  
11 "http://CNN.com."

12 So I've specified the location on the internet. I  
13 made a URL. That's what it's called when you use a web  
14 browser. And I used the java.net.URL class. I created a new  
15 java.net.URL object. I gave it a name "site." That's a  
16 website. And now I'm going to use that.

17 So I've done one step, specify a location on the  
18 internet by using the java.net.URL class in the java.net  
19 package, and I know that that class exists because I've written  
20 code before.

21 Q. What would be the second step?

22 A. I need to open a location to that website to be able to  
23 read it. And since I'm going to read it, I know -- again,  
24 because I'm experienced -- that the location on the internet,  
25 I need a connection to it, and it's going to stream information

1 to me. So I know what I need is a java.io.InputStream, and  
2 that's the source of my information. So the class is  
3 InputStream in the package java.io. And I get that by saying  
4 "OpenStream."

5 So I've called a method in the URL class. It says  
6 "site.OpenStream." OpenStream is the method. I'm going to go  
7 over the internet, make a connection to CNN.com, and I've got  
8 that connection, and now I'm ready to read it and print it on  
9 my screen.

10 Q. Is there another step for that?

11 A. One more step to print it on the screen:

12 System.out.print. I'm going to take the source, and I'm going  
13 to read it. So I call the Method Read, which is in the  
14 java.io.InputStream. It allows me to read the stream.

15 This is a lot of steps. It's specify location, make  
16 the connection to it, read it, and print it on my screen.  
17 Those are the three steps that I need to specify location, make  
18 the connection to it, and cause it to, the contents of that  
19 website to be displayed on the screen.

20 I took one small liberty. This actually prints just  
21 one character from the website. It would be a little more  
22 complicated to read all the characters from the website. That  
23 would be just one other method, but this illustrates how to  
24 call the libraries in the packages that we have been hearing  
25 about.



1 Q. Professor, you testified that in order to use the  
2 prewritten code in the libraries, the programmer has to use the  
3 Method signature that's defined under the specification  
4 exactly.

5 Do you recall that testimony?

6 A. Yes. I talked about that.

7 Q. In this program you've just written -- first of all, is  
8 this program now complete?

9 A. That program is complete.

10 Q. In this program, these three lines of code, did you, in  
11 fact, include any Method signatures that would call for  
12 something, prewritten code, in any of the libraries?

13 A. Yes. I used essentially four different Method signatures,  
14 four.

15 Q. Can you, using a red marker, just identify the Method  
16 signatures that you used to invoke the code in the libraries?

17 A. I called the constructor for the URL class -- we heard  
18 some testimony, I think from Dr. Bloch, that constructors are  
19 like methods. They are pretty similar. Sometimes people talk  
20 about them as different, but they are almost the same.

21 So I called the URL constructor right there. That's  
22 code in the Java libraries.

23 I called the OpenStream Method. That's a method  
24 that's in the URL class. And I know that I don't send it  
25 anything, and it returns a stream, an input stream. I have to

1 understand what to pass to it, which is nothing, and what I get  
2 back, which is an input stream.

3 Then I called the Read Method, and it gives me back a  
4 character from that stream.

5 And I called the Print Method to print it on my  
6 screen.

7 So those are the four methods I called. All of those  
8 are in the API packages that we have heard about.

9 **Q.** Are they in the same package or different packages that  
10 you just -- if I -- quickly, how do you know what package --

11 **A.** Java.net.URL, that's the class in the package. Java.net  
12 is the package, URL is the class.

13 Site.OpenStream, that's in the URL class. The method  
14 is OpenStream.

15 Read is in the InputStream class of java.io.

16 And Print is in the OutputStream class of system.out,  
17 which is actually in java.io, also.

18 So I have java.URL, java.net.URL, java.net.URL,  
19 java.io, java.io.

20 **Q.** How many packages have you called on, in just writing  
21 those three lines of code?

22 **A.** I called on java.lang, which I left out. Everything uses  
23 java.lang. So java.lang, java.net, and java.io. Three  
24 packages.

25 **Q.** And now are these actual, real signatures, what you've

1 written on the board, or were they just for illustrative  
2 purposes, examples?

3 **A.** These are exactly the Method signatures that you would  
4 need to call.

5 **Q.** And how do you know that those are exactly the Method  
6 signatures?

7 **A.** I know these are the Method signatures because I have had  
8 some experience writing programs, and that's how I know that  
9 these are the right Method signatures.

10 **Q.** Have you memorized these Method signatures?

11 **A.** I haven't sat down with a piece of paper to memorize them.  
12 Because I have written code for so long, I know the ones I use  
13 often. They are in my head.

14 **Q.** And now when you wrote out those Method signatures exactly  
15 as they appear in the specifications, did you copy them from  
16 the specifications?

17 **A.** No. I just used these Method signatures. I used them  
18 here so that I could write my code. I'm using these  
19 signatures. I need to use them to call the libraries. As a  
20 programmer you rely on those libraries. I use them to call the  
21 library code.

22 **Q.** And so would or would not this program actually run if you  
23 put it on a computer?

24 **A.** This program would run. I left out an exception, but it  
25 would run.

1 Q. And what would it show on the screen?

2 A. It would show the first character from CNN.com on my  
3 screen.

4 Q. In order to actually have it show pictures and other  
5 content from CNN.com, tell the jury briefly what else you would  
6 need to add to this program, if anything?

7 A. If I wanted to show pictures -- right now all this does is  
8 read a stream of information. If I wanted to show pictures, I  
9 would have to call a library that displayed pictures. This  
10 just prints words, characters.

11 To make a picture appear, I would need a different  
12 library in a different package to cause pictures to be  
13 displayed on a screen.

14 Q. To do that, would you need to use additional API methods  
15 that have been implemented in API?

16 A. I would use a library that allowed that, other classes in  
17 other packages and other methods to cause those pictures to be  
18 displayed. This would not do that.

19 Q. And would this program run on the Android platform?

20 A. This program would run on the Android platform, yes.

21 Q. Would this program run on a computer that had the Java  
22 Platform on it?

23 A. Yes, it runs on a Java Platform as well.

24 Q. Professor, do you have an opinion whether, from a computer  
25 science perspective, Android and Java would be compatible with

1 respect to these three methods you just invoked in your  
2 program?

3 **A.** Yes. Since this runs on both the Android platform and the  
4 Java Platform, that's my definition for what it means to be  
5 compatible, that the same code runs on both platforms.

6 **Q.** Do you have an opinion, Professor, whether, from a  
7 computer science perspective, Android and Java are compatible  
8 with respect to the methods and other constructors and other  
9 items in the classes of the 37 accused packages?

10 **A.** Yes. For those 37 packages, the code that I write on one  
11 platform will run on the other platform.

12 **Q.** Now, you've testified you used three or four AP -- you  
13 invoked three or four methods from the API in writing this  
14 program; is that right?

15 **A.** Yes, that's correct.

16 **Q.** Approximately, can you tell us how many lines of code  
17 writing did you save by invoking those four methods rather than  
18 just writing a completely new program that didn't use any  
19 prewritten code from the libraries?

20 **A.** By writing these, I've saved probably, not even probably,  
21 absolutely a thousand lines of code. For me to write this out  
22 all by myself without using those libraries, it would be a  
23 thousand lines of code.

24 **Q.** All right. Thank you.

25 **THE COURT:** I've got some questions before he leaves.

1 I know it's coming out of your time, but...

2 This is a terminology point. Those things that you  
3 circled in red, what were those again?

4 **THE WITNESS:** These are the methods that I'm using.  
5 OpenStream, that's a Method. Read, that's a Method. Print,  
6 that's a Method. And URL, that's a constructor, which is a  
7 method that creates things.

8 **THE COURT:** That's what I thought I heard you say  
9 earlier, but then you used the word "signature" and I didn't  
10 catch that. I didn't understand.

11 And you were pointing to the red circles, too.  
12 Signature --

13 **THE WITNESS:** In order to call the Method -- here I'm  
14 calling the Method (indicating). That's the terminology that  
15 we use, "I call the Method." I send it something, the black  
16 box happens, and I get back the result.

17 In order to make that call, I need to know what the  
18 Method signature is. I need to know that, for this method, I  
19 give it a string. I give it a string that's the location of  
20 the site of the interpret. So I give it a string, and I get  
21 back a URL.

22 Here, I give this method nothing. It's a black box.  
23 It gets nothing, but it gives me back a connection over the  
24 internet. It gives me back an input stream. I need to know  
25 the signature that says what to give in and what to get back.

1 Otherwise, I don't know how to use this method in my program.

2           **THE COURT:** So take the print one --

3           **THE WITNESS:** The print?

4           **THE COURT:** Right, print. What part of that one is  
5 the signature?

6           **THE WITNESS:** The signature is the name of the  
7 Method, which is print, and the parameters that I pass to it,  
8 which are the results of reading this source. That's the  
9 parameter. It has one parameter. One thing I send to the  
10 black box. So the signature would be this, which is a string.  
11 And what I get back here is nothing. I just cause it to be  
12 displayed on the screen.

13           So sometimes the black box gets something and things  
14 happen and you don't get back anything. Printing on the screen  
15 doesn't return anything, doesn't give me back something.  
16 Opening a stream gives me back a stream.

17           **THE COURT:** So if you had -- can you just give us an  
18 example of a signature that would have an example where you  
19 sent an input and you got an output, so that we can see what  
20 that kind of signature looks like.

21           **THE WITNESS:** This constructor is such a signature.  
22 The input is a string. So for the URL -- I'm going to write it  
23 up here. The URL constructor, I would see "String," and I  
24 would -- and it creates a URL. So this is what you send in,  
25 and the URL is what you get back.

1           So the input is a string that specifies the location  
2 on the internet, and the output is a URL, which is a lot of  
3 stuff because it makes the connection happen.

4           **THE COURT:** So the output is URL?

5           **THE WITNESS:** Correct. It's a URL object. It's a  
6 URL object.

7           The output of this Method is an InputStream object.

8           **THE COURT:** So is the signature, the name of the  
9 method in -- in combination with the --

10          **THE WITNESS:** Input?

11          **THE COURT:** Yeah, the input and --

12          **THE WITNESS:** Output (indicating).

13          **THE COURT:** (Continuing) -- and output.

14          **THE WITNESS:** Fully qualified name, which in this  
15 case is java.net.URL, I need to know that full name and the  
16 inputs, and I get the output. All of that is part of the  
17 method signature: Name, input, output.

18          **THE COURT:** Thank you. I have one other question.

19               Yesterday you were going through, and I made notes on  
20 your little diagrams, package, class, method, and so forth.  
21 And I thought I understood it, that these packages were already  
22 these preexisting things. But you start out calling your thing  
23 package. You say "package simple," right?

24               So now you're either using "package" in two different  
25 ways, or I don't understand what a package is.



1           **THE WITNESS:** I think you do understand what a  
2 package is. I hope so. I will give one simple explanation.

3           The prewritten code, all that prewritten code is in  
4 packages that I get as a programmer so I can use it. That  
5 prewritten code is all in the 37 packages. I know how to use  
6 it because I'm an experienced programmer.

7           As a programmer, the Java language requires that my  
8 code is in a package; me, the programmer. The code I get,  
9 that's Java code, it's in a package. It's in a library. And  
10 there's 37 packages we have been talking about that I get to  
11 use.

12           I'm the Java programmer. I have to write my code in  
13 a package, too. The Java language requires that my code be in  
14 a package. That's a different package.

15           **THE COURT:** So that word "package" there, literally  
16 the computer requires you, or the language, using the Java  
17 language requires you to start out with the word "package."

18           **THE WITNESS:** Yes, it does, unless I have anonymous  
19 package, which is discouraged by the language specification.  
20 And since I'm a careful programmer I make sure I specify my  
21 packages.

22           **THE COURT:** Can I ask one last question?

23           That thing about Public Class, Public Static, I don't  
24 get that part either.

25           **THE WITNESS:** Method signature. Public Static Void

1 Main. Name of my Method, Main. In the Class WebReader. In  
2 the Package Simple. The fully qualified method name would be  
3 simple.Webreader.main.

4 The Method signature here is the name of the Method,  
5 Main; the parameters that go in, which is just part of Main;  
6 and what I get back, which is nothing. Public just means  
7 anybody can use it.

8 All of the methods that we have been talking about  
9 that are in the Java APIs, they are all public because they are  
10 going to be used by people like me writing code like this.

11 **THE COURT:** So you're presupposing that you're going  
12 to donate this to the Java system, is that it? Is that what  
13 Public is --

14 **THE WITNESS:** No. No, no, no. I'm not writing this  
15 to the Java system. I'm writing my own code because I'm a  
16 hobbyist and I want to write my own WebReader instead of using  
17 Google Chrome.

18 **THE COURT:** Why wouldn't you say "Private" instead of  
19 "Public"?

20 **THE WITNESS:** I'm not allowed to. This is a special  
21 signature for a program. It has to be Public. It doesn't mean  
22 that I'm donating it to the public. These words, "Public" and  
23 "Private," have a very language-specific feature that isn't  
24 about whether the public is going to use them. It's about how  
25 accessible they are to other programs, not to other people.

1           **THE COURT:** All right. Do you have another color you  
2 can circle for us what the name part of that is, like the other  
3 witness did, so we'll know what -- I want us all to be clear  
4 what the name of your -- Package, is that what we call it, the  
5 name of your Package?

6           **THE WITNESS:** Name of my Package, name of my Class,  
7 name of my Method (indicating). That is a fully-qualified  
8 name, simple.WebReader.name.

9           **THE COURT:** Thank you. That's all the questions I  
10 have.

11           **MR. BABER:** You can resume the stand, Professor.

12           (Resumes stand)

13 **BY MR. BABER**

14 **Q.** Professor, in connection with your work in this matter,  
15 have you become familiar with the Android Platform?

16 **A.** Yes.

17 **Q.** Have you become even more familiar with the Java Platform  
18 than you have been before?

19 **A.** I'm slightly more familiar with both, yes.

20 **Q.** I just want to ask you quickly about some characteristics  
21 of the two platforms. Have you conducted any analysis of the  
22 numbers of lines and files of code in the two platforms and  
23 different parts of them?

24 **A.** Yes, I have conducted such an analysis.

25 **Q.** And did you calculate the numbers of lines and files in

1 the different parts of the two platforms?

2 **A.** Yes, I did.

3 **Q.** And have you prepared an exhibit that summarizes the  
4 results of your analysis?

5 **A.** Yes, I have.

6 **MR. BABER:** Can we call up Exhibit 3536, which is the  
7 graphic we just put the number on?

8 (Document displayed)

9 **BY MR. BABER**

10 **Q.** Is this the summary you prepared of your analysis of the  
11 Java and Android platforms?

12 **A.** Yes, that looks like.

13 **Q.** Could you just explain to us quickly what these numbers  
14 are?

15 **A.** There are three columns. One is the number, just an  
16 explanation. That's the left column. Then we see the Android  
17 Platform and the Java Platform. Java is the second column,  
18 Android is the third column.

19 **Q.** So on the first line where it says "Lines - Platform,"  
20 what does that tell us; how many lines of code are in the  
21 Android Platform?

22 **A.** In the Android Platform there are 15 million lines of  
23 code.

24 **Q.** Okay. The next line down says, "Files - Platform." What  
25 does that indicate?

1 **A.** There are 57,000 files, each one is some kind of code, on  
2 the Android Platform.

3 **Q.** Okay. Dropping down to the next line, it says,  
4 "Lines - all API packages." And I see for Android there is  
5 three different lines, not just one. Can you explain that?

6 **A.** The three lines in the Android side are the 51 Java  
7 packages, that's in the Java name space. All 37 packages we  
8 have been talking about are Java or Javax.

9 **Q.** Let me interrupt for a second, Professor. We have been  
10 talking all through trial about 37 Java packages?

11 **A.** Yes, that's correct.

12 **Q.** How many Java packages are in Android altogether?

13 **A.** There are 51 Java packages.

14 **Q.** Is it your understanding that only 37 of them are accused?

15 **A.** That's my understanding, yes.

16 **Q.** Okay. Please continue.

17 **A.** The other 117 Android packages are packages that are used  
18 on the Android Platform, also in the Java language but not part  
19 of those 51 Java packages.

20 **Q.** And do some or all of those Android packages provide or  
21 perform similar functionalities to what the ones in the Java  
22 Platform that are different from the 37 accused provide in that  
23 platform?

24 **A.** The Android Platform is a different platform. It's  
25 designed to be in a mobile device, a phone or tablet. So those

1 packages don't have analogs on the Java side. There may be  
2 some similarities, but they are really different for the  
3 Android Platform, not for the Java Platform.

4 Q. The next line down compares the same things, but it  
5 compares files rather than lines; is that correct?

6 A. That's correct. There are lines of code, and then the  
7 number of files that contain those lines.

8 Q. The last two lines on the chart are the lines -- we are  
9 just focusing on the accused 37 packages, is that or is that  
10 not right?

11 A. That's correct, just the 37 packages.

12 Q. I want to ask you about some comparisons Professor,  
13 Astrachan. Have you compared the Java Platform Version 5.0 in  
14 its entirety to the Android Platform?

15 A. Yes.

16 Q. Have you formed an opinion regarding whether the Android  
17 Platform is or is not substantially similar to the Java  
18 Platform?

19 MR. JACOBS: Objection, relevance, your Honor.

20 THE COURT: Well, it might not be the right legal  
21 question, I understand that part, but it has bearing on the  
22 overall relevance to the case. So we'll take it one step at a  
23 time.

24 Overruled. Please answer.

25 A. The platforms are not similar.

1 BY MR. BABER

2 Q. And what are the bases for your opinion?

3 A. The platforms are defined for very different things. The  
4 Android Platform, as I mentioned, is a mobile platform. It has  
5 different expectations and services that it provides. The Java  
6 Platform is -- we're talking about Java SE. It's a desktop  
7 platform and it has a very different purpose as well.

8 Q. And the 37 accused packages, what part of the Android  
9 Platform are they?

10 A. They are a very small part of the Android Platform, kind  
11 of a very small part of the core libraries that's a very small  
12 piece of the Android Platform.

13 Q. Are there any similarities or differences between the code  
14 that's in Android and the code that's in the Java Platform, the  
15 source code?

16 A. The source code that's in the implementation of Android is  
17 very different than the source code that's in the Java  
18 Platform.

19 Q. Are there any similarities at all?

20 A. In the 37 packages, there's some similarities in the  
21 method signatures but not in any implementing code.

22 Q. Is the implementation code in the Android packages  
23 completely different or not completely different from the  
24 implementation code in the Java Platform?

25 A. The implementation code in Android is completely different

1 than the implementation code in Java.

2 **Q.** Have you formed an opinion, Professor, regarding what, if  
3 anything, accounts for the fact that the 37 packages in both  
4 platforms have the same structure, organization, and use the  
5 same names?

6 **A.** Those same names that we have in Android and in Java are  
7 needed so that the code inter-operates, so that code I write  
8 can be reused in another situation. So for the functionality  
9 of using those APIs, the method signatures need to be the same  
10 so that the code will inter-operate and meet programmer  
11 expectations.

12 **Q.** Does use of the same structure and organization for the  
13 packages in Android and the same names, does it or does it not  
14 serve any functional purpose in Android?

15 **A.** The language specification says I must use Package, Class  
16 and Method names. And the functionality that those complete  
17 signatures provide is what allows me to use the libraries on  
18 both -- use the code I write, like that code up there, on both  
19 platforms. Because I'm using those Method signatures, my code  
20 will function the same on both platforms.

21 **Q.** All right. I'm going to ask you now about a second  
22 comparison, Professor. I would like you now to compare what we  
23 see on the third line of the chart, which is, I want to take  
24 the APIs in both platforms.

25 So in the Java Platform they are all Java packages;



1 is that right?

2 A. That's correct.

3 Q. And in Android, some of them are Java Platform and some of  
4 them are Android API packages, correct?

5 A. That's correct.

6 Q. Have you compared those to each other?

7 A. Yes, I have.

8 Q. Do you or do you not have an opinion whether those two  
9 things were substantially similar to each other?

10 A. Those are not similar at all.

11 Q. What are the reasons for your inclusion?

12 A. The implementation of all the methods that are in common  
13 is completely different. And both platforms have methods that  
14 are not in common at all, and their implementations are, also,  
15 completely different.

16 Q. When you say "completely different," do you literally mean  
17 completely different? There's nothing that's the same between  
18 the implementing code in the API in the Java Platform and the  
19 implementing code in the Android platform?

20 A. The code is completely different in the Android Platform  
21 that implements the methods from the code in the Java Platform.

22 Q. And with respect to the packages and the structure of the  
23 packages, are there any similarities between the two platforms?

24 A. No. The Package names, Class names, and Method names for  
25 the 37 packages are the same; otherwise, there are no -- they

1 are different.

2 Q. And do you have an opinion as to whether there are any  
3 reasons why those things are the same, the structure, the  
4 organization, and the names?

5 A. As I've mentioned before, that structure of the names of  
6 the classes, packages, and methods needs to be the same so that  
7 the code will work on both platforms, be compatible,  
8 inter-operate, so that I can call the methods. Those need to  
9 be the same.

10 Q. And a third comparison, Professor. This time I want you  
11 to compare all of the API in Java, the 166 packages that make  
12 up the Java API -- and that's how many lines? Does our chart  
13 tell us?

14 A. 2.8 million lines of code.

15 Q. I want to compare that to the 37 accused packages in  
16 Android. Does our chart tell us how many lines that is?

17 A. Our chart says that that's 237,000 lines of code.

18 Q. Have you compared the two of those to each other?

19 A. Yes, I have.

20 Q. Have you formed an opinion as to whether those two things  
21 are substantially similar or not?

22 A. Those are very different.

23 Q. Can you explain why?

24 A. On the face of it, 237,000 and 2.8 million are very, very  
25 different numbers. And the code itself that's in the Android

1 Platform is completely different than the code in the Java  
2 Platform.

3 Q. And when you say "the code," you mean the implementation  
4 code that actually performs the functions what we have been  
5 calling the prewritten code?

6 A. Yes. The code that implements the library functions in  
7 Android is completely different than the code that implements  
8 the functions in Java.

9 Q. When you say "completely different," you mean literally  
10 completely different, nothing is the same?

11 A. The Method signatures are the same, but that's not part of  
12 the implementing code.

13 Q. Other than the method signatures that's in those  
14 37 packages in Android, are there any other things that are the  
15 same when you compare the 166 packages in Java with the  
16 37 accused packages in Android?

17 A. No. Other than Method signatures, the code is different.

18 Q. Is the structure and organization of those 37 accused  
19 packages the same as the structure of those same packages in  
20 Java?

21 A. The structure organization of the same packages, the same  
22 37, that's the same because that language requires that and --  
23 as I have mentioned before.

24 Q. Have you formed an opinion as to why the structure and  
25 organization of the packages and the names is the same?

1 A. Yes. So that the code that I wrote up there, "Will work  
2 on both platforms," I need to have those package class method  
3 names be the same so that I can rely on that.

4 Q. Now, in your work in the computer science field, have you  
5 ever heard reference to the Structure, Sequence and  
6 Organization of a computer program?

7 A. Yes.

8 Q. Okay. Have you heard of the concepts of selection and  
9 coordination and arrangement of elements in connection with a  
10 computer program?

11 A. Yes.

12 Q. And have you ever heard reference to selection,  
13 arrangement and structure of a computer program?

14 A. All those terms are familiar to me.

15 Q. And do all those terms make some sense to you in the  
16 context of how an API is put together?

17 A. Yes.

18 Q. Okay. And, for example, what are the attributes of the  
19 structure of an API?

20 A. The structure of an API is something that we have talked  
21 about here. It's the -- in Java API because we're only  
22 speaking about Java, APIs in other languages might be  
23 different. Package name, Class name, Method name.

24 Q. And would you call that a hierarchal structure?

25 A. Yes, I think that's reasonable to call that hierarchal.

1 Q. Is that hierarchal structure required by the Java language  
2 specification, or is it not?

3 A. The language specification requires Packages, Classes,  
4 Methods.

5 Q. Now, there are additional elements that relate to the  
6 structure of the Packages, correct?

7 A. Yes. There are additional elements related to the Classes  
8 in the Packages.

9 Q. And give us some examples of what those are.

10 A. We've seen some examples that people talk about, that a  
11 class inherits characteristics from another class or  
12 implements, interfaces in another class.

13 I know that Dr. Reinhold showed you some of that. So  
14 that's part of the structure.

15 Q. Would that include, for example, dependencies?

16 A. Yes. When one class depends on another, that's part of  
17 the structure.

18 Q. How about if one class extends another, it's a subclass of  
19 it, would that be included in your category of organizational  
20 elements?

21 A. Yes.

22 Q. And how about what -- what interfaces a Class implements,  
23 would that be part of the organization?

24 A. Yes, it would.

25 Q. Now, when someone is designing an API -- not implementing

1 an API, but designing an API -- and they have thought about the  
2 design and come up with the ideas of what they want to put in  
3 the API, but they are actually ready to start building it, what  
4 do they do to create the API?

5 **A.** To create the API, I decide the Package names, Class  
6 names, Method names. I understand their specifications. And  
7 then I get ready to implement it after I've gotten all that  
8 done.

9 **Q.** And when you're ready to begin implementing, literally  
10 what do you sit down and do as the person who is going to  
11 create that API or create a package within the API?

12 **A.** I start writing code to implement the different methods.

13 **Q.** And when you do that, are all the good ideas that you had  
14 in the design of the API, are they, in fact, reduced to some  
15 concrete form in the code that you write --

16 **MR. JACOBS:** Objection, your Honor, leading again.

17 **BY MR. BABER**

18 **Q.** (Continuing) -- or is it not?

19 **MR. JACOBS:** It's still leading.

20 **THE COURT:** "What extent, if at all."

21 **BY MR. BABER**

22 **Q.** To what extent, if at all, are the ideas that you have had  
23 for what the API will look like and how it's structured -- to  
24 what extent, if at all, are those ideas reflected in the actual  
25 code that you write when you're creating the API?

1 **A.** I think it's easy to explain by looking at the example  
2 that I wrote up there. I have a Package name. I have a Class  
3 name. I have the Method names. All those are decided on when  
4 my API is designed. So when I go to implement it, I just put  
5 Package name, Class name, Method name, Method name, Method  
6 name. All those are required and all those are done when I've  
7 designed the API. It's all laid out for me. I just do that.  
8 That's the simplest part; implementing, much harder.

9 **Q.** And is the structure and organization and all the things  
10 we discussed earlier, inheritances and extensions of classes,  
11 are those classes contained and actually reflected in specific  
12 lines of code?

13 **A.** Yes, they are put in very specific lines. I have to say  
14 what is extension and what's implemented. That's all part of  
15 the code that I wrote. It's one line for each class.

16 **Q.** And how many lines of code actually implement the  
17 characteristics of a class that you want to put in your new  
18 API?

19 **A.** There is one line for every method. There is one line for  
20 every class. And there is a line for the package that I  
21 specify. So I have a Package line, a Class line -- and that  
22 Class line has all the inter-dependencies about what is  
23 inherited -- and then a line for every Method.

24 **Q.** If you wanted to replicate exactly the structure  
25 organizational characteristics of a group of packages, could

1 you write code that did just that, just replicated the  
2 structure and nothing else, or is that not possible?

3 **A.** I could do that. People call that writing a stub  
4 implementation, where it doesn't actually do anything, it just  
5 has the structure of the Classes, Packages and Method names.  
6 And there would be no implementing code so that I can kind of  
7 have my layout ready to go for when I start implementing it. I  
8 could do that.

9 **Q.** So to replicate the structure and organization of  
10 everything that's in these 37 accused classes in Android, how  
11 many lines of code would that take?

12 **A.** That would take as many lines of code as there are  
13 Methods, plus as many lines of code as there are Classes, plus  
14 for each class there would be a Package.

15 **Q.** Approximately how many lines of code is that?

16 **A.** 7,000, plus or minus.

17 **Q.** And that 7,000 lines of code would replicate in its  
18 entirety every structural and organizational element of those  
19 packages, or would it not?

20 **A.** Those 7,000 lines are exactly that.

21 **Q.** So we saw earlier on your chart, Professor, that in those  
22 37 Android packages there's other 237 lines of code; is that  
23 correct?

24 **A.** Yes, that's correct.

25 **Q.** But only 9,000 of them create the structure and



1 organization; is that your testimony?

2 **A.** I believe I said 7,000, but 7,000 out of 237,000. That's  
3 correct.

4 **Q.** About what percentage is that, Professor, 7,000 out of  
5 230,000 lines of code?

6 **A.** Well that's about 7 out of 237. That's, you know,  
7 essentially nothing.

8 **Q.** It's one-tenth or two-tenths of one percent?

9 **A.** Yeah, in -- yes, very small.

10 **Q.** All right, sir. So if you ignore the implementations and  
11 what you're comparing is only the structure and organization of  
12 those 37 packages to each other, those similarities reflect  
13 less than one-half of one percent of the code in the  
14 37 packages, does it or does it not?

15 **A.** 7 out of 237 is less than that, yes. It's a very small  
16 percentage.

17 **THE COURT:** Wait a minute, 7 out of 237?

18 **MR. BABER:** He's dropping off the thousands -- let's  
19 just ask, your Honor.

20 **BY MR. BABER**

21 **Q.** 7,000 out of 237,000?

22 **A.** Yes, that's correct, 7,000 out of 237,000. That's the  
23 same as 7 out of 237.

24 **THE COURT:** All right. So you're saying that's less  
25 than one percent? But if you multiply 7 times 100, you get

1 700.

2 MR. BABER: I apologize your Honor, I misspoke. Let  
3 me rephrase the question to the witness.

4 BY MR. BABER

5 Q. Less than five percent --

6 THE COURT: Well, there is a big difference between  
7 five percent and less than one-tenth of one percent.

8 MR. BABER: I jumped the question, your Honor. Let  
9 me go back.

10 THE COURT: I'm 66 years old, but I can still do  
11 math.

12 (Laughter.)

13 MR. BABER: Let me do it this way.

14 BY MR. BABER

15 Q. The 9,000 lines --

16 A. 7,000 lines.

17 Q. 7,000 lines out of the 237,000, that's about what percent  
18 of the 37 packages?

19 A. You know, math? I'm a computer science guy. The judge  
20 can apparently do that math for us.

21 Q. And that's approximately -- do you know what it is  
22 approximately?

23 A. Well, I can divide. Okay. Five percent.

24 Q. Is it a big percentages or small percentage?

25 A. A very small percentage.

1 Q. Those 9,000 lines that provide the structure of the  
2 37 packages, when we compare it to the complete Android API, is  
3 approximately what percent?

4 A. Now we're talking 7,000 out of 1.7 million, too small for  
5 me to divide.

6 Q. And compared to the Android Platform as a whole, those  
7 7,000 lines of code that create the structure and organization  
8 is approximately what percent of the 15 million lines of code?

9 A. If you give me a calculator I will tell you, but it's  
10 very, very small. 7,000 out of 15 million, small.

11 Q. I'd like to talk just for a moment --

12 THE COURT: Before you change the subject, I don't  
13 think -- I'm positive this was -- or either I didn't hear it  
14 right. You said at one point 37 classes, and I think the  
15 witness understood that you were saying 37 packages.

16 But can we all be clear that when you're saying 37,  
17 you're referring to packages?

18 THE WITNESS: I will try not to be -- yes. 37, I  
19 always assume, means packages.

20 THE COURT: But you did use the word "Class," and I  
21 know it was an error, but it might be confusing. So let's make  
22 sure that we all agree that was an error.

23 Okay, continue.

24 MR. BABER: Thank you.  
25

1 **BY MR. BABER**

2 **Q.** I would like to talk for a minute, Professor, about the  
3 Java programming language. Do you have an opinion, based on  
4 your experience with Java, the language and how Java is used as  
5 a practical matter regarding which or what parts of the  
6 37 packages, if any, are necessary to use the language as a  
7 practical matter?

8 **A.** The language requires that I have Packages and Classes and  
9 Method names. So all of those are required by the language.

10 **Q.** And with respect to the 37 packages that are in Android,  
11 do you have an opinion as to whether or not the functionalities  
12 provided by those 37 packages are necessary in order to make  
13 practical use of the language?

14 **A.** We've heard -- you've heard --

15 **MR. JACOBS:** Objection, your Honor. This isn't in  
16 either of his reports.

17 **MR. BABER:** He's responding, your Honor, to what he's  
18 heard at trial. Your Honor said the experts could respond to  
19 what they heard at trial.

20 **THE COURT:** I don't remember.

21 Did I say that, Mr. Jacobs?

22 **MR. JACOBS:** You did, your Honor, we agree.

23 **THE COURT:** All right. Well, then, objection  
24 withdrawn.

25 Go ahead.

1 **A.** We've heard from both Dr. Reinhold and Dr. Bloch that  
2 there are roughly 61 classes referenced in the Java language  
3 specification that are required to implement the Java language  
4 specification, and that seems right to me. And that doesn't  
5 talk about how many classes you need to do useful work with  
6 Java, and that's much more.

7 **Q.** All right. Let's talk about, just with the 37 packages,  
8 which, if any, of those you think are necessary in order to do  
9 useful work. Let's start with the four core packages: Lang,  
10 util, io, and net. And let's also include nio in that; group  
11 of five, four plus, nio.

12 Do you have an opinion as to whether or not those  
13 packages are necessary in order to program as a practical  
14 matter?

15 **A.** Yes, those are all necessarily. We saw -- I used three of  
16 those. I didn't use nio, but I used three of those just to  
17 make a simple connection over the internet. So they are all  
18 necessary to make practical programs.

19 **Q.** Now, the 37 also include three packages that are  
20 sub-packages of the lang package; is that right?

21 **A.** Yes.

22 **Q.** It also includes four packages that are sub-packages of  
23 nio?

24 **A.** Correct.

25 **Q.** Does it also include five packages that are sub-packages

1 of util?

2 **A.** Yes.

3 **Q.** And does it include two packages that are sub-packages of  
4 the net package?

5 **A.** Yes.

6 **Q.** So total is 14 of the additional packages are sub-packages  
7 of those core five, or are they not?

8 **MR. JACOBS:** We're leading again, your Honor.

9 **THE COURT:** Very leading. Sustained.

10 **MR. BABER:** All right.

11 **BY MR. BABER**

12 **Q.** Are -- are, or are not, the packages in the 37 that are,  
13 have names that start with the same thing as the core packages,  
14 are they, or are they not, sub-packages of the core ones?

15 **A.** There are several packages that are included as subclasses  
16 of -- sub-packages of java.net, java.lang, java.util. All of  
17 those are required in the same way to do practical work.

18 **Q.** Okay. And that leaves us some Packages we haven't talked  
19 about. And I would just like to ask you what they do and  
20 whether you have an opinion as to whether or not they are  
21 necessary in order to use the language as a practical matter.

22 There are two Packages that have SQL in the name.  
23 Those are java.SQL and javax.SQL.

24 **A.** SQL is the structured query language.

25 **MR. JACOBS:** This is beyond the scope of his reports

1 and not responding to something that happened in court.

2           **MR. BABER:** It's responding, your Honor. Dr.  
3 Reinhold said that only a very small number was necessary to  
4 use the language, and Professor Astrachan has a different  
5 opinion.

6           **MR. JACOBS:** Well, it is a different issue. One is a  
7 question of what he thinks would be nice to have in order to  
8 use the language, and the other is what's required.

9           **MR. BABER:** This was in his opening report, your  
10 Honor, Paragraph 100.

11           **THE COURT:** There is a difference between what's nice  
12 to have and what's essential to have. I think we've heard  
13 testimony on that.

14           So I'm going to let you ask these questions, but I  
15 want the witness to answer this question along the way, which  
16 is: Okay, so some of these would be possibly called out in the  
17 Java programming language, but for those that weren't called  
18 out, you could have written your own, right; and that could  
19 have been done, or could it? Maybe it could not have been  
20 done.

21           That's what I would like for you -- but you can  
22 pursue this line of questions as long as you answer that  
23 question at some point.

24 **BY MR. BABER**

25 **Q.** The two that have SQL in the name, can you describe what

1 they do and whether you have an opinion as to whether or not  
2 they are necessary in order to use the language, as a practical  
3 matter?

4 **A.** Those packages were designed to allow programmers to  
5 access databases. They are essential in many applications, not  
6 every application.

7 I would expect a useful language to allow me to  
8 access database and using packages that allow me to do that,  
9 allow me to do that.

10 I would not know how to write the code to access a  
11 database. I know how to call the code. I would not know how  
12 to write the code that actually does it. I do know how to call  
13 it.

14 So, from my point of view, I need those packages to  
15 be able to access a database. I couldn't write the code to do  
16 it without those packages.

17 **Q.** There are also 10 packages in the 37 that have the word  
18 "security" in their name. Could you describe what those do,  
19 and whether you have an opinion as to whether or not those are  
20 necessary to make practical use of the language?

21 **A.** Those are about making secure connections on the internet  
22 and doing things in a secure way so that your information is  
23 kept safe on your phone or in your computer. A long time ago  
24 we didn't worry about security. Now we do. Security is a very  
25 complicated -- it's complicated.



1           So for me to know that my programs are running  
2 securely, I rely on the java.security package because that  
3 functionality is provided there. I would not know how to write  
4 that code myself. Somebody did. Java engineers and Android  
5 engineers knew how to write that code.

6 **Q.** Do you have an opinion as to whether those 10 packages  
7 with "security" in their name are or are not necessary to make  
8 practical use of the language?

9 **A.** As I've just said, today's world, we need to be secure.  
10 I would need to use those.

11 **Q.** There are also three packages among the 37 that have  
12 "crypto" in their names, c-r-y-p-t-o. Are you familiar with  
13 those packages?

14 **A.** Yes. Those are about doing cryptography encryption and  
15 decryption, which is also needed in many transactions for that.

16 **Q.** Do you have an opinion as to whether the three crypto  
17 packages are or are not necessary in order to make practical  
18 use of the language?

19 **A.** In many applications they would be required, yes.

20 **Q.** There is package named java.text. Could you tell us what  
21 that does and whether you have an opinion regarding whether  
22 it's necessary to make practical use of the language?

23 **A.** Yes. That allows me to do internationalization and to  
24 make sure that my text is -- appears properly.

25 **Q.** There is a package named java.awt.font. What does that

1 package do?

2 **A.** The font package allows things to appear on the screen  
3 well-formed so that they are readable. It's part of that  
4 process.

5 **Q.** And do you have an opinion as to whether or not what's in  
6 that package in Android is or is not necessary in order to make  
7 practical use of the language?

8 **A.** Yes. To make practical use, it requires that things can  
9 be seen.

10 **Q.** And the last package out of the 37, Professor, is  
11 java.beans. What is java.beans?

12 **A.** Java.beans allows my classes to kind of work together with  
13 each other and perform useful purposes.

14 **Q.** Do you have an opinion as to whether the functionalities  
15 provided by java.beans is or is not necessary to make practical  
16 use of the programming language?

17 **A.** Yes, it is.

18 **THE COURT:** May I ask this question: You have gone  
19 through a bunch of these saying that they are necessary, but I  
20 understood you earlier to say that the Android implementation  
21 on those 37 was different from the Java implementation.

22 Is that still correct?

23 **THE WITNESS:** That is correct.

24 **THE COURT:** So when you're saying that these were  
25 necessary, you're referring to which piece is necessary?

1           **THE WITNESS:** The functionality provided by those  
2 packages is necessary.

3           **THE COURT:** All right. Thank you.

4           Go ahead.

5 **BY MR. BABER**

6 **Q.** Professor, do you have an opinion regarding whether or not  
7 having these 37 packages in Android is or is not something  
8 that's required to meet the expectations of programmers who are  
9 writing in the Java language?

10 **A.** I think it's required to meet expectations of Java  
11 programmers.

12 **Q.** And do you have an opinion regarding whether having these  
13 37 packages in Android is or is not required by expectations of  
14 industry, of people who use the programming language?

15           **MR. JACOBS:** Lacks foundation, your Honor. He has no  
16 idea what industry requires.

17           **THE COURT:** Are you qualified to answer that  
18 question?

19           **THE WITNESS:** I believe I am qualified to answer that  
20 question.

21           **THE COURT:** Why would you be qualified?

22           **THE WITNESS:** Because my students want jobs in  
23 industry, and industry comes and tells me what the  
24 characteristics my students need to go get jobs in industry  
25 are.

1           **THE COURT:** What has that got to do with this  
2 specific question?

3           **THE WITNESS:** Companies actually come and say, "How  
4 come your students don't learn this and do learn that?"

5           **THE COURT:** Have they done that enough for you to be  
6 confident you have a well-founded opinion on this subject?

7           **THE WITNESS:** I think I do.

8           **THE COURT:** All right. Objection overruled.

9           Go ahead.

10 **BY MR. BABER**

11 **Q.** Professor, do you have an opinion regarding whether having  
12 these 37 packages in Android is or is not something that is  
13 required to meet industry expectations?

14 **A.** I do. I think they are required to meet industry  
15 expectations.

16 **Q.** And is the basis for your opinion what you just told the  
17 judge in response to his questions?

18 **A.** Yes.

19 **Q.** All right. Professor, do you or do you not have an  
20 opinion regarding whether the 37 packages that appear in the  
21 Android API, whether that is or is not a means of using and  
22 accessing the prewritten code in the libraries?

23 **A.** I believe I've discussed that these 37 packages, the  
24 Method signatures allow me to use the libraries in my code that  
25 I write as a programmer, yes.

1 Q. All right, sir. And are you familiar also with not just  
2 the Packages and the Methods in them, but also the  
3 documentation that is included in Android?

4 A. I'm familiar with the documentation.

5 Q. And do you have an opinion regarding whether the  
6 documentation for the 37 classes that are in Android, whether  
7 that documentation is or is not substantially similar to the  
8 documentation in the same 37 classes in Java?

9 A. I don't think the documentation is the same. I think it  
10 describes similar functionality, but the documentation is  
11 different.

12 Q. All right, sir. Do the comments in the documentation use  
13 some of the same terms and phrases, or don't they?

14 A. Yes, they do. That's required to specify what the methods  
15 do.

16 Q. Do you have an opinion, Professor Astrachan, whether or  
17 not the documentation in the Android 37 packages is or is not  
18 virtually identical to the documentation in the same 37 classes  
19 in Java?

20 A. I don't think it's virtually identical, no.

21 Q. And what's the basis for your opinion?

22 A. I have read much of that documentation, and when I've read  
23 it, it looks to me like it's very, very different between the  
24 Android Platform and the Java Platform.

25 Q. Professor, during the trial, you've heard various

1 analogies used for APIs or parts of APIs?

2 **A.** Yes, sir, I have heard several.

3 **Q.** I want to ask you about one of them. Is an API in any  
4 respect analogous to a file cabinet?

5 **A.** I think a filing cabinet is a reasonable way of talking  
6 about the structure of how the API is organized, yes.

7 **Q.** Is it is a perfect analogy or not a perfect analogy?

8 **A.** It's not a perfect analogy, but it's a good analogy.

9 **Q.** Is there some way in which the file cabinet analogy could  
10 or could not be made more appropriate to more accurately or  
11 more completely be an analogy for the API packages we have been  
12 talking about?

13 **A.** When we talked about the filing cabinet, we talked that  
14 the filing was a package; that the drawers were Classes, and in  
15 those drawers we saw Methods.

16           What we -- what was missing maybe in the explanation  
17 was that on the drawer itself, you have might see, "Please go  
18 see this other drawer." That would have the subclass,  
19 superclass relationship we talked about, this class extends  
20 another one. Or it could say, "Please go see this drawer  
21 because it implements an interface."

22           Those interfaces are drawers and those classes are  
23 drawers. And so you might see on the label of the drawer, you  
24 know, a little tab that says, "Please go see this drawer in  
25 that filing cabinet. Please go see this drawer in that filing

1 cabinet." That would explain that structure.

2 Q. And when you testified earlier that in the code for the  
3 API, that those characteristics and the interdependencies and  
4 the subclasses and the implementation of interfaces, how many  
5 lines of code are they contained in?

6 A. That was, that was 6,000, and then 7,000, total for the  
7 classes and packages.

8 Q. And at the Class level -- not at the Method level, but at  
9 the Class level how many lines of code does it take for each  
10 Class to define those characteristics of inheritance and  
11 dependencies and the like?

12 A. There are about 600 classes. That's about 600 lines.

13 Q. So per class, how many are there?

14 A. One per class.

15 Q. One per class. And is that -- well, could you or could  
16 you not just put one label on the file cabinet drawer and have  
17 it reflect all those characteristics?

18 A. One label. It might have a few things on that label  
19 because it might reference one drawer or four drawers, but one  
20 label.

21 MR. BABER: Thank you.

22 No further questions, your Honor.

23 THE COURT: Why don't we take our break? It's now  
24 9:15. We will take a 15-minute break at this time.

25 I did the math. It's 2.9 percent. 7 out of 237 is

1 2.9 percent. I'm sure some of you over there figured that out  
2 before I did.

3 Fifteen minutes. Thank you.

4 (Jury exits courtroom at 9:15 a.m.)

5 **THE COURT:** Okay. Be seated.

6 Any issues for the judge?

7 **MR. BABER:** Not on our side, your Honor.

8 **THE COURT:** How about Mr. Jacobs, any issues for the  
9 judge?

10 **MR. JACOBS:** No, your Honor.

11 **THE COURT:** All right. So you'll be ready to go with  
12 your cross in 15 minutes?

13 **MR. VAN NEST:** Thank you, your Honor.

14 **MR. JACOBS:** Yes.

15 **THE COURT:** See you then.

16 **MR. BABER:** Your Honor, before we break, can I  
17 apologize to the court reporter?

18 **THE COURT:** For what?

19 **MR. BABER:** For speaking a little faster than she'd  
20 like, on occasion, during the examination of Dr. Astrachan.

21 **THE COURT:** Thanks for the heads-up. Okay.

22 (Whereupon there was a recess in the proceedings  
23 from 9:16 a.m. until 9:29 a.m.)

24 **THE COURT:** Be seated. Let's go back to work.

25 Dawn, can you bring the jury?



1 (Jury enters courtroom at 9:29 a.m.)

2 **THE COURT:** Okay. Welcome back, have a seat.

3 And let me ask before we get started: Everyone over  
4 there okay? Good.

5 There are some files that are in front of the  
6 witness. Do you want those there before you begin -- you do  
7 want them there.

8 Is our witness ready to go?

9 **THE WITNESS:** Yes, sir.

10 **THE COURT:** I have everyone over there ready?

11 (Jury nodding affirmatively.)

12 **THE COURT:** Mr. Jacobs, the floor is yours.

13 **CROSS EXAMINATION**

14 **BY MR. JACOBS**

15 **Q.** Good morning, Dr. Astrachan.

16 **A.** Good morning.

17 **Q.** Isn't it true that the Java programming language and the  
18 Java Application Programming Interface are very different  
19 things?

20 **A.** The language is different than the programming interface,  
21 that's true.

22 **Q.** Isn't it true that they -- that they -- that the word  
23 "Java" refers to three very different things: The Java  
24 programming language, the Java Application Programming  
25 Interfaces, or software source code that references and

1 implements the APIs?

2 **A.** Yes. Java has been used to refer to all of those.

3 **Q.** I'm sorry, sir.

4 Isn't it true that Java may refer to three very  
5 different things?

6 **A.** Yes.

7 **Q.** Is it difficult to write good APIs?

8 **A.** Yes.

9 **Q.** It's difficult to write good APIs in the same way it's  
10 difficult to be an artist, a football player, a concert  
11 violinist?

12 **A.** I have no experience being an artist or a concert  
13 violinist, so I'm not sure if it's equal or harder. Those  
14 things are hard, is my understanding. I don't know whether to  
15 say "as hard." I don't know that I'm qualified to tell you  
16 that.

17 **MR. JACOBS:** Your Honor, I would like to play a video  
18 clip from 127, Lines 20 to 24, and 128, 8 to 18, of Dr.  
19 Astrachan's deposition.

20 **THE COURT:** Go ahead.

21 (Videotape played in open court;  
22 not reported.)

23 **BY MR. JACOBS**

24 **Q.** Dr. Astrachan, do you agree with Professor Mitchell that  
25 only a small number of classes are actually necessary for the

1 Java programming language?

2 **A.** I think we have heard testimony to that, yes, I agree, in  
3 the language specification 61 classes.

4 **Q.** Sixty-one classes are necessary, correct?

5 **A.** At a minimum, yes.

6 **Q.** Well, minimum or, or not, sir?

7 **A.** I agree with the testimony we heard in court, that the  
8 language specification talks about 61 classes, yes.

9 **Q.** And that, therefore, 61 classes are necessary to use the  
10 language?

11 **A.** Yes, that's correct.

12 **Q.** Now, Dr. Astrachan, you said that it was necessary to have  
13 the Method signatures in the Android API in order for this  
14 program to run, having been written for the Java APIs on  
15 Android; do you recall that testimony?

16 **A.** Yes.

17 **Q.** This program won't run on Android; will it, sir? And I  
18 emphasize the word "run."

19 **A.** Running a program on Android is a different process than  
20 running a program on the Java Platform.

21 **Q.** So a program that's prepared to run on the Java Platform  
22 won't run on the Android platform -- again emphasizing the word  
23 "run" -- correct, sir?

24 **A.** The entry points are different on the platforms.

25 **Q.** Can you answer my question "yes" or "no," sir?

1 A. The program itself would need to be modified for the entry  
2 point so that it would run on the Android platform.

3 Q. Isn't it true that the whole object or format in Android,  
4 the dex code in the Android, is different from the bytecode in  
5 Java, sir?

6 A. I thought you were asking me about the code I wrote. I  
7 did not write dex code or bytecode. I wrote source code in the  
8 Java Programming Language.

9 Q. Source code won't, quote, run, unquote, on anything; will  
10 it, sir?

11 A. No. It has to be compiled to run.

12 Q. And it has to be prepared to run on a platform; correct,  
13 sir?

14 A. That is correct.

15 Q. And so this program that you wrote on the board -- Package  
16 Simple Author, et cetera -- it won't run until you do that  
17 preparation; correct, sir?

18 A. Yes. You have to compile it to run on the platform, that  
19 is correct.

20 Q. And so, and just to be clear, a program that has been  
21 compiled to run on a Java Platform will not run on an Android  
22 Platform because the format of the code in the Android Platform  
23 is different than the format of the code in the Java Platform.

24 A. Can I understand your question to mean that the bytecode  
25 format and the dex code format, that's different. The source

1 code is the same format, but the underlying code that runs on  
2 the platform is different.

3 Q. Now, you said that the -- I think you were talking about  
4 7,000 lines of code as just a small piece of Android.

5 Do you recall that testimony?

6 A. Yes, I do.

7 Q. And this is the 7,000 lines of code that word-for-word,  
8 symbol-for-symbol, is identical in the Android core libraries  
9 as compared with the Java core libraries, correct?

10 A. Yes. Those are the Method signatures that are the same in  
11 both platforms.

12 Q. As to the 37 packages?

13 A. That's correct.

14 Q. What would happen if you ripped those lines out of  
15 Android?

16 A. Well, for the purposes of the Android core libraries,  
17 those are part of it, so they need to be there for Android to  
18 work as it's been designed.

19 Q. And the Court asked before the break, couldn't Android  
20 developers have just written their own Method signatures, their  
21 own Application Programming Interfaces, leaving aside the  
22 60-plus classes we talked about earlier that are required by  
23 the Java language specification. And Mr. Baber didn't follow  
24 up, so I need to follow up.

25 Couldn't the Android developers have written their

1 own Application Programming Interfaces for the overwhelming  
2 majority of the 37 packages that are in dispute?

3 **A.** If you're asking is it possible to write a different API,  
4 then it would be possible to write a different API.

5 **Q.** And couldn't you write a different API that would provide  
6 the same basic functionality in terms of what services it  
7 provided?

8 **A.** Yeah, I think it would be possible to provide an API that  
9 performed similar functionality; not maybe exactly the same but  
10 similar.

11 **Q.** Similar in terms of, you were talking about SQL you could  
12 write -- Android developers could have written their own API to  
13 access SQL services; correct, sir?

14 **A.** I think that the Android developers are pretty smart  
15 people. They probably could have done something to allow that  
16 to happen.

17 **Q.** Well, they wrote most of their own core libraries,  
18 according to you; right, sir?

19 **A.** Yes, that's correct.

20 **Q.** And were you saying that none of the core libraries in  
21 Android, that were written differently for Android as to their  
22 API, provide very similar underlying functionality as the  
23 corresponding core libraries in Java?

24 **THE COURT:** That question -- I don't understand it.

25 **MR. JACOBS:** It wasn't very well framed.

1           **THE COURT:** Please rephrase that question.

2   **BY MR. JACOBS**

3   **Q.** We have the 37, where the API is virtually identical;  
4 correct, sir?

5   **A.** Correct.

6   **Q.** And the Structure, Sequence and Organization of the API  
7 elements is virtually identical across those 37 packages,  
8 correct?

9   **A.** That's right.

10   **Q.** And the underlying code for those 37 packages reflects  
11 that Structure, Sequence and Organization in the two sets of  
12 packages; correct, sir?

13   **A.** I don't know what "underlying code" means.

14   **Q.** The implementing code.

15   **A.** The implementing code is completely different on both  
16 platforms.

17   **Q.** But it reflects the same Structure, Sequence and  
18 Organization. Doesn't it have to, sir; wasn't that your  
19 testimony on direct?

20   **A.** No. I said that the implementations were completely  
21 different.

22   **Q.** You said -- Mr. Baber asked you that the structure and  
23 organization of the two are the same.

24           And you said, Well, it has to be because the Method  
25 declarations are appearing in the same place.

1 A. Yes. The Method declarations the same, that's correct.

2 Q. And the Method declarations are like the  
3 sub-sub-sub-chapter headings in this Structure, Sequence and  
4 Organization; correct, sir?

5 A. I think that's one analogy that's reasonable.

6 Q. And so the Structure, Sequence and Organization of the  
7 underlying code across the 37 packages in Java and Android,  
8 they both reflect the API design; correct, sir?

9 A. Not the underlying code. I did not use that term. The  
10 underlying code as the implementing code, that's different on  
11 both platforms.

12 Q. It has the same position, the same functional code lies in  
13 the same position in the sub-sub-sub-chapter taxonomy that I  
14 just described to you; doesn't it, sir?

15 A. Each Method that's the same on both platform has different  
16 implementing code. The Method signatures are the same. They  
17 don't have to be in the same location on both platforms. They  
18 just have to have the same name.

19 So if Math.max could be in Chapter 52, it has to be  
20 in a chapter -- in your analogy, it has to be in  
21 java.lang.math, and those names have to be the same in both,  
22 but the underlying implementation is very different on both  
23 platforms.

24 Q. It has to be in the same position in the Application  
25 Programming Interface Structure, Sequence and Organization,



1 correct?

2 **A.** That is correct.

3 **Q.** And when -- it's not just stubs that has to be in the same  
4 position, the code has to actually provide the functionality  
5 defined by the Application Programming Interface; correct, sir?

6 **A.** Yes. The code has to meet its specification, that is  
7 correct.

8 **Q.** And that specification is what links the Method  
9 declaration to actually doing something that is meaningful,  
10 correct?

11 Let me ask it a different way: `Java.lang.Math.max`  
12 doesn't mean, "Call your mother"; right, sir?

13 **A.** That's correct.

14 **Q.** There is a -- there's functionality that does something in  
15 `java.lang.Math.max`, and it's -- that functionality corresponds  
16 across the two sets of packages in dispute; correct, sir?

17 **A.** Yes. You would expect differing implementations to have  
18 the same functionality across the different platforms, that's  
19 correct.

20 **Q.** Isn't it true, sir, that the `nio` Package didn't even come  
21 into existence in 2002 -- until 2002?

22 **A.** I think we hired Dr. Reinhold talk about it. He was the  
23 lead on that JSR.

24 **Q.** You argued that the Android documentation is not similar  
25 to the Java documentation for the 37 packages; is that your

1 testimony, sir?

2 **A.** The documentation explains and specifies what the API  
3 does, so it's similar in that it explains the same things, but  
4 it's different in that it was, that it's different. The words  
5 are different. They have to explain the same stuff. So often  
6 that reflects similarities, and we've seen some of that in  
7 court, I think.

8 **Q.** Isn't it true that the Structure, Sequence and  
9 Organization of the documentation is a reflection of the  
10 Structure, Sequence and Organization of the code from which the  
11 documentation is extracted?

12 **A.** I don't think that's quite completely accurate.

13 **MR. BABER:** Objection, your Honor, relevance. I  
14 don't think there is any claim as to the SSO of the  
15 documentation.

16 **THE COURT:** Well, we will find out when we do the  
17 closing arguments, but for now overruled.

18 **BY MR. JACOBS**

19 **Q.** Let's take a look very quickly at Trial Exhibit 610.2,  
20 and Trial Exhibit 767, side-by-side, Dr. Astrachan.

21 **A.** Okay.

22 **Q.** This will be javax.crypto.cipher.

23 **THE COURT:** Is this in evidence?

24 **MR. JACOBS:** Yes.

25 **THE COURT:** Does the jury see anything on their

1 screen? I only have one side of it.

2 **MR. JACOBS:** It's coming up.

3 (Document displayed)

4 **BY MR. JACOBS**

5 **Q.** Now we're looking at documentation for something in the  
6 Package javax.crypto, right?

7 **A.** Package is javax.crypto, that's correct.

8 **Q.** And the Class is the cipher? Class is cipher?

9 **A.** Yes.

10 **Q.** And that Structure, Sequence and Organization that I just  
11 described is identical across the two sets of documentation;  
12 isn't it, sir?

13 **A.** It's describing the same Class in the same Package, yes.

14 **Q.** Which have the same position in the Application  
15 Programming Interface hierarchy; correct, sir?

16 **A.** I don't know about position in the hierarchy. They have  
17 the same Package name, Class name, and that's it. We're --  
18 Package and Class. So, yeah, they have the same Package name  
19 and Class name, yes.

20 **Q.** That's a hierarchal relationship; correct, sir?

21 **A.** In the sense that the packages come above classes  
22 according to the Java language specification, that is  
23 hierarchal.

24 **Q.** And across the 37 packages, if we were to compare the  
25 documentation, we would see word-for-word, symbol-by-symbol,

1 the Package, Class and other declarations that are in the  
2 Application Programming Interface documentation correspond;  
3 correct, sir?

4 **A.** The documentation has to include that because it's  
5 reflecting the Package name and Class name. So, yes, it would  
6 be the same.

7 **Q.** It has to do that if you decided you're going to copy the  
8 Application Programming Interfaces into Android; correct, sir?

9 **A.** I don't believe that the things were copied. I think  
10 that -- I think the Android platform uses the same API, but  
11 nothing was copied.

12 **Q.** You explained how that would be done. You would take the  
13 specification and you would derive source code that implements  
14 to the specification; correct, sir?

15 **A.** No. I didn't -- I did not use the word "derive."

16 **Q.** You would write source code based on the specification;  
17 correct, sir?

18 **A.** Yes, I would write source code based on the specification.

19 **Q.** And similarly, and now that we know how this documentation  
20 is actually created, the documentation is based on the source  
21 code; right, sir?

22 **A.** No. I don't think the documentation is based on the  
23 source code. The documentation is in the file with the source  
24 code, and it's extracted from that to create a human readable  
25 form.

1 Q. Was the choice to pick 37 packages to implement Android,  
2 was that a requirement of the Java programming language or a  
3 commercial objective of the Google developer, sir?

4 A. I can only tell you that it was not a requirement of the  
5 Java programming language. I can't tell you -- I was not  
6 conversant with the Android developers -- as to why they chose  
7 it.

8 MR. JACOBS: Thank you very much.

9 THE COURT: All right. Any more?

10 MR. BABER: Just very few, your Honor.

11 Could we have the same exhibit still on the screen?  
12 It's 610.2.

13 Can we call it up, your Honor? They just had it on  
14 the screen.

15 THE COURT: Would the Oracle technical assistant put  
16 those two back on the screen for convenience.

17 (Document displayed)

18 **REDIRECT EXAMINATION**

19 BY MR. BABER

20 Q. Professor, Mr. Jacobs just asked you which questions about  
21 the elements at the very top of this Class overview that are  
22 the same in both Java and Android.

23 Do you recall that testimony?

24 A. Yes, I do.

25 Q. To the extent they are the same, do you attribute that to

1 anything?

2 **A.** I attribute that to the requirements of the Java  
3 programming language, that you have Package names and Classes  
4 have to be in those packages. This reflects that.

5 **Q.** If someone is implementing the specification for the  
6 package, would you expect these to be the same, similar,  
7 identical; what would be your expectation?

8 **A.** I would expect them to be the same, identical.  
9 Javax.crypto.cipher needs to be the same in both because they  
10 are the same API.

11 **Q.** Mr. Jacobs asked you about the program that you wrote this  
12 morning, and he asked you whether it would run, whether it  
13 would compile on the Android platform as opposed to Java.

14 Would you have written this program any differently  
15 if someone told you it needed to run on the Android platform as  
16 opposed to the Java Platform?

17 **A.** I would have changed the main. That's a Java entry point.  
18 Otherwise nothing else would change.

19 **Q.** Okay.

20 **THE COURT:** Change what?

21 **THE WITNESS:** The main.

22 **THE COURT:** Where is that?

23 **THE WITNESS:** The Public Static Void Main. That's a  
24 requirement of the Java Platform and the Java Language on that  
25 platform. That's the launch point for a program.

1           **THE COURT:** You would change it to what?

2           **THE WITNESS:** For how to do that on Android. That's  
3 a little different.

4           **THE COURT:** All right. Thank you.

5 **BY MR. BABER**

6 **Q.** Finally, Dr. Astrachan, you gave a number of opinions  
7 earlier about comparison and -- of the two platforms, and  
8 Mr. Jacobs asked you about some of those.

9           Have you heard testimony that the Android platform is  
10 given away for free by Google?

11 **A.** Yes, I have heard that testimony.

12 **Q.** And you heard testimony that Google may benefit  
13 commercially from that, right?

14 **A.** That is correct.

15 **Q.** Would any of your opinions about the similarities between  
16 the two platforms or the lack of similarity between them in  
17 regarding the use of the same elements as in the structure of  
18 the API be any different if Android was being distributed by a  
19 nonprofit entity?

20 **A.** No, it would not be different.

21 **Q.** Or by an educational institution?

22 **A.** No, it would not be different.

23           **MR. BABER:** Nothing further.  
24  
25

**RECROSS EXAMINATION**

**BY MR. JACOBS**

**Q.** Inadvertently, Dr. Astrachan, you may have confused the jury.

You didn't mean to say that, as to these two side-by-side pieces of documentation, the actual Application Programming Interface choices, such as naming it Class cipher and putting certain functionality in that Class, are driven by the Java programming language; did you, sir?

**A.** The name "cipher" and the name "crypto" are not required by the language. The fact that there is a hierarchal relationship with the classes and packages, that's what's required, not the specific names.

**Q.** So Java requires an outline, but it doesn't require what you put in the outline; correct, sir?

**A.** It doesn't mandate the names.

**Q.** Or the functionality; correct, sir?

**A.** Classes have to be classes and packages have to be packages, but what the functionality is, is what the API designers decide.

**MR. JACOBS:** Thank you, sir.

**MR. BABER:** Just one question?

**THE COURT:** Yes.



**FURTHER REDIRECT EXAMINATION**

**BY MR. BABER**

**Q.** Even if the language doesn't require the use of that specific name, "Class cipher," is there something else that requires the use of that name "Class cipher"?

**A.** Android required it for inter-operability, and so that programmers using Android would have the same expectations that the programmers used in Java, yes.

**Q.** Where did that specific name, "Class cipher," come from?

**A.** It's a cipher. That's a mathematical and cryptological phenomenon. That word "cipher" reflects the function of what this does. It's a functional specification.

**Q.** Would that be the specific name that is included in the -- would it or would it not be the specific name that's included in the specification for this Class?

**A.** The Java Language says names should reflect their purpose, and cipher is a cipher, so that's why it's named cipher.

**MR. BABER:** Okay. Nothing further.

**MR. JACOBS:** Nothing further, your Honor.

**THE COURT:** All right. May Dr. Astrachan step down?

(No response.)

**THE COURT:** Seems so.

Thank you, sir.

(Witness excused)

**THE COURT:** At this time Google may call its next

1 witness.

2 **MR. VAN NEST:** Your Honor, at this time Google rests.

3 **THE COURT:** We have reached a milestone in the case;  
4 yet another one. So now both sides have presented their  
5 case-in-chief.

6 And we now go back to Oracle for -- you've already  
7 presented one. Remember yesterday we had a witness out of turn  
8 who was a rebuttal witness? That was Mr. McNealy.

9 Does Oracle have another witness to present?

10 **MR. JACOBS:** Yes, we do.

11 **THE COURT:** All right. We're now into what's called  
12 the rebuttal case. Usually these are quite short and anywhere  
13 from 10 minutes to a couple of hours long. But I don't know  
14 what we have in store here, but I don't want you to think that  
15 this will go on for days. I'm sure it will not.

16 All right. We're back into the rebuttal case by  
17 Oracle.

18 **MR. JACOBS:** Your Honor, we are going to begin with a  
19 brief deposition clip of Mr. Agarwal.

20 **THE COURT:** All right. Before we start playing it,  
21 how long will it be?

22 **MR. NORTON:** A minute and a half.

23 **THE COURT:** And can you -- I'm going to let you  
24 explain to the jury, in one sentence of 12 words or less,  
25 what -- who this person is and what his job was.

1           **MR. NORTON:** Yes, your Honor.

2           This is the deposition of Aditya Agarwal, and he's a  
3 senior financial analyst for Android.

4           And, your Honor, this is a 30(b)6 deposition, and you  
5 had indicated, I believe, that you would explain the  
6 significance of that.

7           **THE COURT:** I will explain. A 30(b)6 deposition is  
8 lawyer talk for another procedure we have prior to trial where  
9 one side can say to a corporation, "We would like you to  
10 produce a witness who can speak for the corporation on this  
11 particular subject," which I guess in this case was finances or  
12 something like that. And this --

13           What was the subject matter of -- the 30(b)6 subject?  
14 Is it long-winded? I don't want to go into the --

15           **MR. NORTON:** It is Android revenues and expenses.

16           **THE COURT:** So on that subject this witness was  
17 produced and gave the following testimony under oath.

18           Please play the tape.

19 **WHEREUPON:**

20                               **ADITYA AGARWAL,**  
21 called as a witness for the Plaintiff herein, testified via  
22 videotaped deposition played in open court in the presence and  
23 hearing of the jury.

24           (Time noted: 9:53 a.m.)

25           **MR. JACOBS:** Your Honor, we call Dr. Reinhold.

1           **THE COURT:** And give us a heads-up, roughly how much  
2 time do you think this will take?

3           **MR. JACOBS:** Roughly 10 minutes, your Honor.

4           **THE COURT:** All right. Was he excused or was he on  
5 recall?

6           **MR. JACOBS:** He was on recall, your Honor.

7           **THE COURT:** All right. Do both sides agree that we  
8 do not need to re-swear him?

9           **MR. JACOBS:** Yes, your Honor.

10          **MR. VAN NEST:** Yes, your Honor.

11          **THE COURT:** All right. Dr. Reinhold, welcome.  
12 You're still under oath. You understand that part.

13          **THE WITNESS:** Yes, sir.

14          **THE COURT:** Okay. You need to speak into the  
15 microphone.

16                           **MARK REINHOLD,**  
17 called as a witness for the Plaintiff herein, having been  
18 previously sworn, resumed the stand and testified further in  
19 Plaintiff's rebuttal case as follows:

20                           **DIRECT EXAMINATION**

21 **BY MR. JACOBS**

22 **Q.** Dr. Reinhold, can you remind us how long it took to design  
23 the API packages for the java.nio JSR? And maybe you should  
24 remind the jury what that was.

25 **A.** Sorry. The nio JSR was an API design for high-performance

1 IO in Java. And it took about two years to design that.

2 **Q.** Do you see on the flip chart, we have been talking about  
3 the Application Programming Interface and implementation for  
4 max?

5 **A.** Yes.

6 **Q.** How long would it take you to design a -- the API for  
7 that -- for that functionality?

8 **A.** About 30 seconds.

9 **Q.** Does that type of example accurately depict the work that  
10 goes into designing APIs?

11 **A.** Oh, my, no. In the nio case, for example -- max is a  
12 pretty trivial problem. In nio we had to solve a very hard  
13 problem, a portable high-performance IO API. And to do that we  
14 needed to design hundreds of methods, most of them much more  
15 complicated than max, organized into dozens of Classes across a  
16 handful of different Packages.

17 **Q.** In your earlier testimony, Dr. Reinhold, you referred to  
18 the APIs as kind of a blueprint for the class libraries.

19 Do you recall --

20 **MR. BABER:** Your Honor --

21 **MR. JACOBS:** (Continuing) -- do you recall that?

22 **THE COURT:** What's the objection?

23 **MR. BABER:** I was going to object that he is  
24 continuing the same line of questioning, but it sounds like  
25 he's moved on to something else.

1           **THE COURT:** All right. Go ahead.

2           **BY MR. JACOBS**

3           **Q.** In court we've heard some critique of the blueprint  
4 analogy, that APIs are not like a blueprint because you can't  
5 actually use them to build anything. Do you agree with that?

6           **A.** No, I don't. In a way, the whole, the whole point of the  
7 Java Community Process is exactly to be designing APIs,  
8 blueprints, so that different organizations, different  
9 companies, can create competing implementations.

10          **Q.** So how does a software developer -- or how in the Java  
11 community do software developers go about using Java API for a  
12 blueprint for a class library?

13          **A.** So when you already have a good API designed, it already  
14 has an established gone-through hierarchy of Packages and  
15 Classes and Methods and fields, together with English  
16 descriptions of how everything is supposed to work together.

17               Once you've got that, to do an implementation from  
18 scratch is a relatively easier job. You start by copying the  
19 declarations from the API into your source code. And then you  
20 fill in the methods with actual instruction code that will go  
21 at runtime. And you might need to write some subsidiary  
22 internal Classes, but those are strictly not part of the API.

23          **Q.** Is implementing -- based on your experience in this  
24 business, is implementing an existing API design less or more  
25 work than creating the API design in the first place?

1 A. It's almost always less. You've already got a map worked  
2 out of what you need to do. You follow that map. You fill in  
3 the details. There's room for creativity, but only within the  
4 scope of the existing API design.

5 Q. Dr. Reinhold, you started working on Java at Sun in what  
6 year?

7 A. 1996.

8 Q. Was there a JCP, a Java Community Process, in 1996?

9 A. No.

10 Q. When was it formed.

11 A. 1998.

12 Q. There has been testimony in this case, including from you,  
13 about the process that takes place at the JCP, about approving  
14 a new specification, called the JSR. And you described that,  
15 in working on the JSR, usually an expert group is formed that  
16 gives advice and comments on the new spec.

17 Do you recall that testimony?

18 A. Yes.

19 Q. Were these experts required to sign any kind of agreement  
20 to participate in the expert group?

21 A. Yes, they are.

22 Q. What kind of agreement is that?

23 A. So that's an agreement called the JSPA, the Java  
24 Specification Participation Agreements.

25 Q. And how strict was Sun about requiring the JSPAs to be

1 signed?

2 **A.** Sun was extremely strict about it.

3 **Q.** Did Sun have JSPA agreements in place from the time it  
4 first started working on the specification requests?

5 **A.** Yes, always.

6 **Q.** Did you conduct any review of the source code for  
7 J2SE 5.0, to determine whether any of the 37 APIs at issue in  
8 this case were developed by third parties?

9 **A.** Yes, I did.

10 **Q.** Have you ever done that kind of review before?

11 **A.** Yes.

12 **Q.** And what was the reason you did that?

13 **A.** So we, we did a very thorough review of the entire code  
14 base in 2006, 2007, when we open sourced Java SE.

15 **Q.** And what was the point of that?

16 **A.** The point of that was to verify that the code we were --  
17 that Sun was open sourcing, Sun had all the rights to. There  
18 were some bodies of code which Sun had licensed from other  
19 companies under terms that didn't allow Sun to open source it,  
20 so we couldn't open source those segments. So we had to review  
21 every single line, every line in every file, to make sure that  
22 what we were releasing under the GPL, we were allowed to  
23 release.

24 **Q.** Did you do a similar kind of review with respect to the  
25 37 API packages?



1 A. Yes, I did.

2 Q. And what did you find?

3 A. I found that Sun had a copyright notice in every single  
4 one of the API class source files.

5 Q. In the course of your review, did you determine that there  
6 were any part of the APIs that were copyrighted jointly by Sun  
7 and another party?

8 A. Yes.

9 Q. And what did you find?

10 A. There are a number of API classes in a Package called  
11 java.text, and a few related classes in a Package called  
12 java.util, which are copyrighted by Taligent or IBM. Taligent  
13 at one point was a subsidiary of IBM.

14 Q. Was there an agreement in place between Sun and Taligent  
15 that governed the ownership of the intellectual property in  
16 that work?

17 A. Yes, there was.

18 Q. I'm going to hand you 1082.

19 (Whereupon, document was tendered  
20 to the witness.)

21 Q. Can you identify 1082, please?

22 A. 1082 is the Taligent agreement from July 1996 that governs  
23 the intake of that source code.

24 MR. JACOBS: Offer into evidence, your Honor.

25 MR. BABER: No objection.

1           **THE COURT:** Thank you. 1082 is received.

2           (Trial Exhibit 1082 received

3           in evidence)

4           (Document displayed)

5 **BY MR. JACOBS**

6 **Q.** I'm handing you Exhibit 3530.

7           (Whereupon, document was tendered

8           to the witness.)

9 **Q.** But before I ask you about 3530, how much work did you do  
10 on that particular project?

11 **A.** The project about which -- that's described in 3530?

12 **Q.** No, no, in the Taligent project.

13 **A.** Oh. So, by chance, I was actually deeply involved in this  
14 work. The code came in from Taligent. We worked closely with  
15 an engineer from Taligent to revise it, to make it fit into the  
16 rest of the Java Platform. And that's why there are joint  
17 copyright notices with Sun in those files.

18 **Q.** I'm handing -- I've given you 3530. Can you turn to the  
19 sixth page, please?

20           (Witness complied.)

21 **Q.** This is the -- 3530 is the certified copy of the Copyright  
22 Office file for Java 2 SDK Standard Edition 1.4.

23           Do you see that?

24 **A.** Yes.

25 **Q.** And what did you find at the sixth page?

1 A. The first one that has code on it?

2 Q. Yes.

3 A. So this is a source file partly redacted. It's for the  
4 Package java.nio. It's an internal Class called Bytes.

5 Q. Turn to Page 19 of the source code. I think we're --  
6 okay, let's do that. Turn to page 19 of the source code.

7 What's there?

8 A. That, that's a source file for another Class in the same  
9 Package, java.nio, and that's for a Public Class called  
10 ByteOrder.

11 Q. Why is that code blacked out?

12 A. At the time the copyrights on this were registered, the  
13 code was not publicly considered proprietary.

14 Q. Are you familiar with the code in this source code deposit  
15 with the Copyright Office?

16 A. Yes. I wrote it.

17 Q. Does it correspond, in fact, to the source code for Java 2  
18 SDK Standard Edition 1.4.0, in part?

19 A. Yes, it does.

20 Q. I'm going to show you now 3529, Dr. Reinhold. Can you  
21 tell us what 3529 is.

22 (Whereupon, document was tendered  
23 to the witness.)

24 A. This is a registration for Java 2 Standard Edition  
25 Version 5.

1 Q. Now, turn to the source code enclosure there, please?

2 (Witness complied.)

3 A. Yes, I see it.

4 Q. Does this deposit represent a part of the source code for  
5 Java 2 Standard Edition 5.0?

6 A. Yes, it does.

7 Q. I'm going to hand you 1076.

8 (Whereupon, document was tendered  
9 to the witness.)

10 Q. Can you tell us what 1076 is?

11 A. 1076 is a CD-ROM, and it contains the binary distribution  
12 of J2SE 5.0, together with documentation and some tools and  
13 things like that.

14 Q. And how do you know?

15 A. I'm because I have -- I have a few dozen copies of this in  
16 my office that were left over.

17 MR. JACOBS: No further questions, your Honor.

18 THE COURT: Are you moving 1076 into evidence?

19 MR. JACOBS: Oh, yes, 1076 moved into evidence.

20 MR. BABER: May I voir dire the witness about it,  
21 your Honor?

22 THE COURT: All right.

23 VOIR DIRE

24 BY MR. BABER

25 Q. Good morning, Dr. Reinhold.

1 A. Good morning.

2 Q. The depiction that Mr. Jacobs just asked you about,  
3 Exhibit 1076, you said you had some of those still in your  
4 office?

5 A. Yes, sir.

6 Q. When were they created?

7 A. They were created in October of 2004.

8 Q. And what -- let me back up.

9 Version 5 of the platform, Java 5.E, during the  
10 course of its life had over 20 different releases; isn't that  
11 right?

12 A. After the initial release, yes. There were many  
13 maintenance releases.

14 Q. And when was the first release after the initial release?

15 A. The first update release?

16 Q. Yes.

17 A. I do not recall.

18 Q. Do you recall when the second update release was?

19 A. I do not memorize the release dates of update releases.  
20 They are generally every -- every few months.

21 Q. So what -- the initial version, would you call that Java  
22 5.0.0 --

23 A. So the --

24 Q. (Continuing) -- to distinguish it from the later releases?

25 A. One could call it that.

1 Q. All right. And, in fact, you do call it that within. You  
2 did call it that within Sun, didn't you? The initial release  
3 was 5.0.0, and with the first release it became 5.0.1, .2, .3;  
4 isn't that right?

5 A. No.

6 Q. Okay. Did you ever use any identifying characteristics to  
7 distinguish the first release from any of the subsequent  
8 releases?

9 A. Yes.

10 Q. And what was the distinguishing feature?

11 A. In -- after the initial release of 5, we referred to  
12 update releases as 5 Update 1, 5 Update 2, and so forth; or  
13 abbreviated as 5, lower case u, and then the number.

14 Q. And if you look at the one exhibit Mr. Jacobs showed you,  
15 which is Exhibit 3529, just direct --

16 MR. BABER: May I stand by the witness for a moment?

17 THE COURT: Why don't you move around so the jury can  
18 hear you?

19 MR. BABER: Certainly.

20 BY MR. BABER

21 Q. This is -- the first two pages after the certification is  
22 an application for a copyright registration. Do you see that?

23 A. Yes.

24 Q. And what date was it signed?

25 A. That looks like December 17th, 2004.

1 Q. And can you testify under oath today, Dr. Reinhold, that  
2 there had been no release of a revised version of Java 5.0  
3 between the time of the original release and the date of that  
4 signature?

5 A. No, I can't.

6 Q. Okay.

7 MR. BABER: Your Honor, we would object to the disc  
8 on the grounds that there is no evidence it is, in fact, the  
9 complete work that existed as of the date of the registration.

10 THE COURT: What is the number we're dealing with,  
11 1076?

12 MR. VAN NEST: Yes.

13 THE COURT: 1076 is admitted for what it's worth, but  
14 the Court is not taking a position one way or the other on  
15 whether it is the exact thing that was submitted to the  
16 Copyright Office or not, but there has been sufficient  
17 foundation to allow 1076 to be admitted in evidence based on  
18 the description by the witness.

19 (Trial Exhibit 1076 received in evidence)

20 THE COURT: All right. Anything more?

21 MR. JACOBS: Just a few questions. I'm sorry --

22 MR. BABER: I thought you had passed the witness.

23 MR. JACOBS: I'm going to ask some more.

24 MR. BABER: Have you passed him? I thought you  
25 passed him.

1           **THE COURT:** Is your direct examination done?

2           **MR. JACOBS:** I would -- I have a few more questions,  
3 I guess.

4           **THE COURT:** All right. So you had asked to voir  
5 dire.

6           **MR. BABER:** I asked to voir dire.

7           **THE COURT:** So you interrupted Mr. Jacobs.

8           So, Mr. Jacobs, you can return to asking your  
9 questions.

10           **MR. JACOBS:** Thank you. I apologize, your Honor.

11                           **DIRECT EXAMINATION RESUMED**

12           **BY MR. JACOBS**

13           **Q.** As to the 37 packages that are in dispute in this lawsuit,  
14 how much of the work did Sun do on those packages?

15           **A.** Sun did most of it.

16           **Q.** And how many of them were released in some form before the  
17 JCP process was formed?

18           **A.** Of the 37, probably 7 or 8.

19           **Q.** And after the JCP process was formed, who was the spec  
20 lead for the packages that were developed, out of the 37, under  
21 the JCP process?

22           **A.** For the various JSRs that are relevant, Sun was always the  
23 spec lead.

24           **MR. JACOBS:** Thank you very much.

25           **MR. BABER:** May I?



1           **THE COURT:** Now finish your cross-examination.

2           **MR. BABER:** Thank you, your Honor.

3                           **CROSS EXAMINATION**

4           **BY MR. BABER**

5           **Q.** Dr. Reinhold, Mr. Jacobs asked you about this blueprint  
6 analogy. Do you recall that?

7           **A.** Yes, sir.

8           **Q.** And you said, well, you can use a blueprint to build  
9 something; is that right?

10          **A.** Yes.

11          **Q.** But the API specification doesn't tell you how to write  
12 the code when you build the implementation, does it?

13          **A.** Of course not.

14          **Q.** It -- it just tells you what the code has to do, correct?

15          **A.** Yes.

16          **Q.** And as long as it performs the function that's defined in  
17 the specification, and it calls for the right kind of input or  
18 arguments, and it provides the right kind of output or returns,  
19 you can write that code however you want; isn't that right?

20          **A.** Yes.

21          **Q.** And, in fact, the four different implementations of the  
22 function max, that we see on this flip chart, those are all  
23 different implementations of the same Method that are  
24 different, aren't they?

25          **A.** Sure.

1 Q. But they all implement the same specification, correct?

2 A. Yes.

3 Q. All right. And when you talked to Mr. Jacobs about the  
4 design of the API that's shown in this blueprint, it's correct,  
5 is it not, Dr. Reinhold, that the elements of the structure and  
6 the characteristics of the arrangement of the elements within  
7 the Package, those are actually shown in the source code,  
8 correct?

9 A. Yes.

10 Q. And it's shown in the source code in two lines for each  
11 class; is that right?

12 A. Not always.

13 Q. How many -- what's the most number of lines for a class  
14 that it would take to include all of the hierarchical structure  
15 and other characteristics of the class, such as dependencies,  
16 subclassing, and what interfaces it implements?

17 A. I'd have to check the source space. It could be four or  
18 five, depending on the complexity of the class and its  
19 hierarchy.

20 Q. Could it depend on whether or not they are all written on  
21 one line or written on multiple lines?

22 A. That as well.

23 Q. It's true, is it not, that for each Method it's typically  
24 one line in the source code that defines all those structural  
25 characteristics of where, within the API, that Method belongs;

1 isn't that right?

2 **A.** No. It could be several.

3 **Q.** Okay. It would be the line with the Method signature?

4 **A.** The Method signature itself could take several lines.

5 **Q.** Okay. And what else would it be besides that?

6 **A.** If the Method throws any exceptions, then those would be  
7 specified.

8 **Q.** Anything else you can think of?

9 **A.** In a Method signature? No.

10 **Q.** So unless it's a really long Method signature, we're  
11 talking about one line in the code that characterizes where  
12 that Method belongs in the hierarchical arrangement of all of  
13 that API, correct?

14 **A.** It's in a rather complicated context. There's more  
15 information than what's in that one line.

16 **Q.** But for that particular Method, if you wanted to find out  
17 all of its characteristics -- what Package it's in, what Class  
18 it's in, whether or not it inherits from somewhere else,  
19 whether or not it is dependent on something else, and what  
20 interfaces it implements -- you get all that from those couple  
21 of lines of code at the top of the Method source code; isn't  
22 that right?

23 **A.** No.

24 **Q.** Okay. Where else would you have to get it from?

25 **A.** To understand where the Method fits into the hierarchy,

1 you need to look at the Method declaration, you need to look at  
2 the Class --

3 Q. That's one line, right, the Method declaration?

4 A. It could be several lines.

5 Q. Okay. If it was really long it would be several lines?

6 A. The Method declaration; the Class declaration, which shows  
7 the inheritance relationships and the interface relationships.  
8 You also need to examine the top of the file to understand  
9 which Package the Class resides in.

10 Q. So you have to get the Package name as well, right?

11 A. Yes.

12 Q. So if -- do you know approximately how many lines of code  
13 are in the 37 accused packages?

14 A. No, not offhand.

15 Q. Do you know approximately how many methods are in those  
16 packages?

17 A. In the 37?

18 Q. Yes.

19 A. Not off the top of my head, no.

20 Q. Does about 6,000 sound right to you?

21 A. 6,000 is plausible.

22 Q. Are you familiar with those 37 packages?

23 A. Yes.

24 Q. So if there are 6,000 methods in those packages,  
25 approximately how many classes are there?

1 A. In the 37 packages?

2 Q. Yes.

3 A. I think there are about 700 classes.

4 Q. Okay. So in order to -- and you're familiar with the  
5 concept of a stub implementation?

6 A. Yes.

7 Q. And did you hear Professor Astrachan's testimony earlier  
8 about a stub implementation for the --

9 A. No, I was not in court.

10 Q. All right. A stub implementation of the classes would  
11 replicate exactly the structure, arrangement, selection, and  
12 organization of the packages. It would be everything except  
13 implementing code; isn't that right?

14 A. Roughly, yes.

15 Q. And in order to create a stub implementation of all  
16 37 packages would take about 10,000 lines of code; isn't that  
17 right?

18 A. I'd have to do the math, but that could be.

19 Q. Assume with me for a second, Dr. Reinhold, that we have  
20 about 6,000 methods, less than a thousand classes, you could  
21 create that stub implementation, the skeleton that shows all of  
22 the arrangement, all of the structure, and all of the  
23 organization, with about 10,000 lines of code; is that right?

24 A. That could be.

25 Q. And there's almost 300,000 lines of code in those packages

1 when you count it all up, including the implementing code;  
2 isn't that right?

3 A. I haven't counted it myself, but that could be.

4 Q. That sounds about right for those 37 packages?

5 A. It's plausible.

6 Q. And of the 166 packages in the Java Platform Version 5.0,  
7 approximately how many lines of code was in all 166?

8 A. I don't remember. It's probably four to five million.

9 Q. So out of those four or five million lines of code in the  
10 Java Platform, in order to replicate exactly every part of the  
11 structure, arrangement, organization, sequence, selection, all  
12 of the design choices that went into the APIs for those  
13 37 packages, you would only need 10,000 of those four and a  
14 half million lines of code; isn't that right?

15 A. 10,000 very expensive lines, yes.

16 Q. All right. Dr. Reinhold, you testified some about the  
17 JSPA, correct?

18 A. Yes.

19 Q. And that's the agreement by which people outside Sun  
20 contribute things to the Java Platform under a written  
21 agreement, correct?

22 A. Yes.

23 Q. And that written agreement gives Sun the right to use  
24 what's contributed in the platform, correct?

25 A. Yes.

1 Q. It provides Sun with a license; isn't that right?

2 A. I'm -- I'm not an attorney, whether it's a license or a  
3 contract.

4 Q. Sitting here today, can you not tell us whether or not it  
5 gives Sun a license or whether it gives Sun ownership of what's  
6 contributed?

7 A. Again, I'm not an attorney, sir. I'm not going to  
8 interpret a legal document.

9 Q. Of the 51 -- well, let me back up.

10 Are you familiar that, in addition to the 37 accused  
11 packages, there are also 14 other Java packages in Android?

12 A. There could be.

13 Q. Do you know whether or not, at Android, there are a bunch  
14 of -- well, java.util.concurrent, do you know whether that's in  
15 Android or not?

16 A. I have not looked at Android, sir.

17 Q. Are you familiar with java.util.concurrent?

18 A. I am.

19 Q. That was written by Doug Lee, correct?

20 A. Doug Lee and some of his collaborators.

21 Q. When Doug Lee created java.util.concurrent, he dedicated  
22 it to the public, didn't he?

23 A. That is Professor Lee's practice.

24 Q. And it's your recollection he did that with  
25 java.util.concurrent, didn't he?

1 A. Yes, sir.

2 Q. And he did that with java.util.atomic, didn't he?

3 A. There is no Package of that name.

4 Q. When Professor Lee created java.util.concurrent, were  
5 there two sub-packages that he created at the same time?

6 A. There was at least -- there's atomic, and also one I  
7 believe called locks or lock.

8 Q. And he dedicated all three to the public, didn't he?

9 A. He put them in the public domain.

10 Q. You testified earlier that you had reviewed the source  
11 code looking for indications of other owners of some of the  
12 source code that's in the platform; isn't that right?

13 A. Yes, sir.

14 Q. And you told us about some source code where it was owned  
15 by Taligent, and maybe later IBM; is that right?

16 A. Yes.

17 Q. And you said that that was in java.text and java.util; is  
18 that right?

19 A. Yes.

20 Q. And, in fact, there is other parts of the 37 packages that  
21 are owned or were owned by Taligent and/or IBM; isn't that  
22 right?

23 A. I -- I described the ones of which I'm aware.

24 Q. All right. Well, how about java.awt.font? Isn't it true  
25 that many classes in java.awt.font were contributed by



1 IBM/Taligent?

2 **A.** Yes, sir. But my understanding is that those classes are  
3 not in Android.

4 **Q.** It's your understanding that java.awt.font is not in  
5 Android?

6 **A.** No, sir. My understanding is that the classes owned by  
7 IBM/Taligent are not in that Package in Android.

8 **Q.** Do you know which classes within java.awt.font are in  
9 Android?

10 **A.** I believe there are only two. I don't recall their names  
11 offhand.

12 **Q.** All right. And there are also some classes within  
13 java.net that are owned by nobody; isn't that right,  
14 Dr. Reinhold?

15 **A.** Owned by nobody?

16 **Q.** Yes?

17 **A.** I don't recall such classes.

18 **Q.** There are classes in java.net, such as  
19 java.net.InetAddress.java. Are you familiar with that  
20 Class?

21 **A.** Inet4Address, do you mean?

22 **Q.** Inet4Address; yes, sir, sounds like you're familiar with  
23 it.

24 **A.** Yes.

25 **Q.** What does that Class do?

1 A. It represents an IP address, an internet protocol address  
2 on the network.

3 Q. It represents an internet protocol. Does it do anything  
4 else?

5 A. It represents an internet protocol address.

6 THE COURT: The 37, is that one of the 37 that we're  
7 talking about?

8 BY MR. BABER

9 Q. It's within java.net, correct?

10 A. It's within java.net, which is in the 37.

11 THE COURT: Go ahead.

12 BY MR. BABER

13 Q. And so the Class, Inet4Address.java, simply represents an  
14 international protocol, isn't that right, an international  
15 protocol?

16 A. No, sir. It does not represent a protocol. It represents  
17 an address, a location on the internet.

18 Q. All right. Let's talk about InetAddress.java. That's in  
19 the same Package, correct?

20 A. Yes.

21 Q. And that Class represents an internet protocol, IP,  
22 address, correct?

23 A. It represents an IP address.

24 Q. And what content in that Class was created by Sun?

25 A. I don't know off the top of my head.

1 Q. Is there any content in that Class that was created by  
2 Sun?

3 A. As far as I'm aware, all of the content in that Class was  
4 created by Sun.

5 Q. Is it your testimony, Dr. Reinhold, it's your belief that  
6 a Class that represents an internet protocol address is owned  
7 by Sun?

8 A. It is my testimony that that Class, the source files for  
9 that Class do not contain any legal notice asserting ownership  
10 by anyone other than Sun.

11 Q. Now, are you familiar, Dr. Reinhold, with the packages  
12 that have the Package names javax.xml?

13 A. Yes, sir.

14 Q. How many packages were those when you count javax.xml and  
15 its sub-packages?

16 A. I don't remember off the top of my head. It could be  
17 eight, it could be a dozen.

18 Q. Does 10 sound right?

19 A. That's between eight and a dozen.

20 Q. And isn't it true, Dr. Reinhold, that Sun released under  
21 the Apache license the javax.xml package and all nine  
22 sub-packages of it?

23 A. Could be. I don't recall.

24 Q. You don't have any knowledge about that?

25 A. I know that much of the implementation came from Apache,

1 and was thereby relicensed by Sun under the Apache license.  
2 For the actual java.xml API packages, I honestly don't recall  
3 whether they were licensed under Apache or under something  
4 else.

5 Q. So, Dr. Reinhold, is it your testimony that the code in  
6 the javax.xml packages came from the Apache Foundation in the  
7 first place?

8 A. It is -- I am not saying one way or another where the code  
9 in the javax.xml API packages came from.

10 Q. But you do know that the code in those packages is  
11 released under the Apache license; isn't that right?

12 A. No, sir, I don't. I have not reviewed that source code  
13 recently. I don't remember what it's released under.

14 Q. Do you recall when the javax.xml were added to the Java  
15 Platform?

16 A. Javax.xml, the parsing API, the first couple of them, I  
17 believe, came in one document, but that's a long time.

18 Q. So they have been there a long time?

19 A. Yes.

20 Q. And it's your testimony that you did an extensive review  
21 in all the code and all the packages before you released them  
22 to the GPL, correct?

23 A. Yes.

24 Q. And you can remember details about certain packages, about  
25 who owned them, and IBM and Taligent, correct?

1 A. Yes.

2 Q. But you don't recall whether the javax.xml and its nine  
3 sub-packages were released by Sun under the Apache license; is  
4 that your testimony?

5 A. That is my testimony, sir.

6 MR. BABER: Nothing further, your Honor.

7 THE COURT: All right. May I ask a question on some  
8 of that testimony?

9 You said that, at some earlier point in time, you had  
10 reviewed the 37 along with others to see -- this is what I  
11 wasn't sure of. Let me tell you my point of confusion.

12 Did you review them to see if there was an  
13 affirmative statement of ownership by Sun in the 37 packages,  
14 or did you review them to see if there was an absence of  
15 somebody else claiming them?

16 THE WITNESS: Your Honor, I only looked for  
17 affirmative assertions of ownership by Sun or anyone else.

18 THE COURT: So are you saying that, at the time you  
19 reviewed them, to the extent that they, those 37, then existed,  
20 in every single case you found an indication in the file that  
21 Sun was the owner of that code?

22 THE WITNESS: Not precisely, your Honor. I -- there  
23 could have been files in that review that had no indication of  
24 any ownership. The vast majority had an indication of  
25 ownership by Sun; a few also mentioned, Taligent, IBM.

1           **THE COURT:** All right. So for those that had no  
2 indication, what conclusion can you draw one way or the other  
3 there?

4           **THE WITNESS:** What conclusion I would draw from that  
5 is somewhere an engineer was just sloppy and somehow it slipped  
6 through our auditing process, which frankly surprises me, but  
7 there it is.

8           **THE COURT:** All right. Any more questions,  
9 Mr. Jacobs?

10           **MR. JACOBS:** Yes, your Honor.

11                           **REDIRECT EXAMINATION**

12           **BY MR. JACOBS**

13           **Q.** I would like to show you Trial Exhibit 1083, 1084, 1085,  
14 1086, 1087, and 1088, and ask you to tell us what these are.

15                           (Whereupon, document was tendered  
16 to the witness.)

17           **A.** So these documents are samples of executed versions of the  
18 Java Specification Participation Agreement, the JSPA.

19           **MR. JACOBS:** Offer into evidence.

20           **MR. BABER:** Your Honor, I'm not sure. He's got them  
21 up there, but if that's his testimony that's what they all are,  
22 no objection.

23           **THE COURT:** Is that what they all are?

24           **THE WITNESS:** All of these documents?

25           **THE COURT:** The ones just handed to you.

1           **THE WITNESS:** Let me triple-check.

2           **THE COURT:** Does your testimony apply to all of them?

3           **THE WITNESS:** That is a JSPA. There are some  
4 assorted paperwork separator sheets in here. That's a JSPA.  
5 These are more JSPAs.

6           And sometimes there are the individual expert  
7 participation agreement, which is a slight variance and  
8 sometimes an attachment, waiver, and release of assignment.

9           These are more JSPAs.

10          **MR. JACOBS:** I think they are multiple copies.

11          **THE WITNESS:** Yes, I'm seeing some of the duplicates.  
12 Yes, these are all JSPAs.

13          **THE COURT:** All received in evidence.

14 (Trial Exhibit 1083, 1084, 1085, 1086, 1087, and 1088  
15 received in evidence)

16          **MR. JACOBS:** One more, Dr. Reinhold, 1089.

17          **THE WITNESS:** 1089, another JSPA.

18          **MR. BABER:** No objection.

19          **THE COURT:** Received.

20 (Trial Exhibit 1089 received  
21 in evidence)

22 **BY MR. JACOBS**

23 **Q.** As to the 37 packages in dispute, Dr. Reinhold, has anyone  
24 ever asserted to you that Sun does not own all right, title,  
25 and interest in those packages?

1 A. No.

2 Q. And as to the questions that Mr. Baber was asking you, did  
3 they go to packages that are inside or outside the 37 in  
4 dispute?

5 A. I'm sorry. Some of the questions were about packages  
6 inside and some were about packages outside.

7 Q. And he didn't distinguish in asking you his questions, did  
8 he?

9 A. He -- he did --

10 Q. He didn't distinguish whether they were in or out of the  
11 37?

12 A. I think in a couple of cases he did, and in a couple of  
13 cases it was obvious, I know that they are out.

14 MR. JACOBS: Thank you, your Honor.

15 MR. BABER: One more, your Honor.

16 **FURTHER RECROSS EXAMINATION**

17 BY MR. BABER

18 Q. Dr. Reinhold, regardless of whether the things we talked  
19 about are in the 37 packages in Android, they are all in the  
20 166 packages in Java Standard Edition Version 5.0, correct?

21 A. Yes.

22 MR. BABER: Nothing further.

23 THE COURT: May Dr. Reinhold be excused now?

24 MR. JACOBS: He may, your Honor.

25 THE COURT: Thank you, sir.



1 (Witness excused.)

2 **THE COURT:** All right. Next witness.

3 While we're getting the next witness, would you  
4 retrieve the exhibits on the witness bench and clear the decks,  
5 please.

6 (Brief pause.)

7 **MR. JACOBS:** Your Honor, we call Tiki Dare.

8 **THE COURT:** What is your name?

9 **THE WITNESS:** Good morning. Tiki Dare.

10 **THE COURT:** Okay. Welcome. If you'll stand right  
11 there and raise your right hand, we'll swear you in.

12 **TIKI DARE,**

13 called as a witness for the Plaintiff herein, having been first  
14 duly sworn, was examined and testified as follows:

15 **THE WITNESS:** I so swear.

16 **THE CLERK:** Thank you.

17 **THE COURT:** All right. Great, welcome.

18 You need to sit about this close so you can -- that  
19 mic will move around and adjust for your convenience. That's  
20 good.

21 Why don't you say your name into the mic?

22 **THE WITNESS:** Tiki Dare. T-i-k-i. D-a-r-e.

23 **MR. JACOBS:** Your Honor, I offer into evidence Trial  
24 Exhibit 1078.

25 **THE COURT:** 1078. Any objection?

1           **MR. BABER:** Yes, your Honor. The same as earlier.

2           **THE COURT:** All right. Sustained for now.

3                           **DIRECT EXAMINATION**

4   **BY MR. JACOBS**

5   **Q.** Ms. Dare, can you tell us where you work?

6   **A.** Yes. I'm with Oracle Corporation in Redwood Shores.

7   **Q.** How long have you worked at Oracle?

8   **A.** I worked at Oracle for two years. Before that I was at  
9 Sun, since 1997, and I came to Oracle with the acquisition.

10 **Q.** What is your title?

11 **A.** Managing counsel of trademarks and copyrights.

12 **Q.** What are your responsibilities?

13 **A.** I help to manage the portfolio, both the trademark and  
14 copyright portfolio, of the company.

15 **Q.** Who is the custodian for Sun's copyright files?

16 **A.** I am.

17 **Q.** How familiar are you with Sun's -- how familiar are you  
18 with what Sun's processes were for copyright prosecution?

19 **A.** I am familiar with those. I have given -- in one or two  
20 cases I've actually instructed in those matters, and I had  
21 colleagues at Sun as part of the IP group that were doing that  
22 instruction.

23 **Q.** How familiar are you with the files for the Java 2  
24 Standard Edition 1.4 and 5.0 copyright registration?

25 **A.** I'm very familiar. I reviewed those yesterday.

1 Q. Were those files kept in the ordinary course of Sun's, now  
2 Oracle's, course of business?

3 A. They were, that's correct.

4 Q. At some point were they maintained outside the company?

5 A. Yes. That work was handled by Fenwick & West, our outside  
6 law firm.

7 Q. And then what happened such that they were transferred --  
8 what happened to those files?

9 A. Right. Those, they were maintained by Fenwick at Sun's  
10 instruction. And then further to the acquisition, a  
11 professional conflict arose and Fenwick had to withdraw from  
12 continuing the work. So in or about August of 2010, I became  
13 the custodian of those records.

14 Q. Do you on rely on those records as part of your work at  
15 Oracle?

16 A. We do rely on those records. They are fully integrated  
17 with Oracle's business records kept in the ordinary course. We  
18 rely on those records.

19 MR. JACOBS: Let me approach, your Honor?

20 THE COURT: Sure.

21 BY MR. JACOBS

22 Q. I offer you 1078 and 1081, and ask you to identify those  
23 documents, please.

24 (Whereupon, document was tendered  
25 to the witness.)

1 **A.** 1078 is a letter from Fenwick & West, on Fenwick  
2 letterhead, to the Register of Copyrights. It's a request for  
3 registration of the Java Version 5.0, and it includes a --

4 **MR. BABER:** Object, your Honor, in terms of what it  
5 may state, unless the document has been admitted.

6 **THE COURT:** Sustained for now. It's been identified.  
7 If you get it into evidence, I'll let her identify it some  
8 more.

9 Continue on.

10 **BY MR. JACOBS**

11 **Q.** Can you tell us what the other letter is, 1081?

12 They are -- sorry, should be 1078 and -- what are the  
13 two I gave you there?

14 **A.** 1078, which I just discussed. And then here is 1081 --

15 **Q.** Yes.

16 **A.** (Continuing) -- which is a cover letter, also from Fenwick  
17 & West, to the Register of Copyrights, enclosing an  
18 application --

19 **MR. BABER:** Object again in terms of the content.

20 **MR. JACOBS:** Just state briefly --

21 **THE WITNESS:** It's for 1.4. This one covers 1.4.

22 **BY MR. JACOBS**

23 **Q.** Is there a stamp on the letters indicating anything?

24 **A.** There are two stamps. The stamps read, on 1078, "Refused,  
25 December 20th, 2004, Copyright office, Public Office."

1 And with regard to 1081, "Received, April 20th, 2005,  
2 Copyright Office, Public Office."

3 **MR. JACOBS:** I offer these two exhibits into  
4 evidence, your Honor.

5 **MR. BABER:** May I voir dire, your Honor?

6 **THE COURT:** Okay. Go ahead.

7 **VOIR DIRE**

8 **BY MR. BABER**

9 **Q.** Good morning, Ms. Dare.

10 **A.** Good morning.

11 **Q.** My name is Bruce Baber. I'm one of the lawyers from  
12 Google. We have not met before. I would like to ask you about  
13 the exhibit.

14 **MR. BABER:** May I approach, your Honor?

15 **THE COURT:** All right.

16 **BY MR. BABER**

17 **Q.** Exhibit 1078 --

18 **THE COURT:** What is the date on that one?

19 **BY MR. BABER**

20 **Q.** This is a letter from Ines Gonzalez at Fenwick & West,  
21 LLP, addressed to the Register of Copyrights, December 20,  
22 2004; is that right?

23 **A.** That's correct.

24 **Q.** And you see there is some reference in this document to a  
25 CD-ROM?

1 A. Yes, I do.

2 Q. Can you testify under oath whether or not a CD-ROM was, in  
3 fact, sent to the Copyright Office with a letter like this, on  
4 or about this date, from your first-hand knowledge?

5 A. I do not have first-hand knowledge. I was not present in  
6 December 20th, 2004.

7 Q. And if a disc was sent, can you testify in your first-hand  
8 knowledge as to what the contents of the disc were?

9 A. No. I could only tell you about the contents of what's in  
10 the file today.

11 MR. BABER: Your Honor, no further questions. Same  
12 objections.

13 MR. JACOBS: May I just follow up briefly?

14 THE COURT: Sure.

15 DIRECT EXAMINATION RESUMED

16 BY MR. JACOBS

17 Q. Have you examined the file to determine what disc was in  
18 the records that were at Fenwick and then transferred to  
19 Oracle?

20 A. Yes, I have.

21 Q. And can you look at 1076. It's in front of you,  
22 underneath the registrations.

23 What is 1076?

24 A. 1076 is a CD-ROM.

25 Q. What did you do -- sorry, go ahead.

1 A. It's for Java 5.0, J2SE 5.0.

2 Q. What did you do to confirm that 1076 is actually in the  
3 file that was transferred to Oracle from Fenwick & West?

4 A. So I examined the file, and it looks to me like a Fenwick  
5 file that has subsequently been transferred. It has all the  
6 client numbers. It is kept in the ordinary course the way  
7 Fenwick did. I was an associate at Fenwick & West for a year,  
8 and then instructed them in trademarks for about 12 years after  
9 that, while I was at Sun Microsystems.

10 And it includes a CD-ROM. It's in a cover, which is  
11 not reproduced here. And I examined it. It is in the place  
12 where we would expect it to be in the file, meaning it's in the  
13 copyright deposit portion of that file. And I also examined it  
14 and a copy of it, to make sure that the contents were in place.  
15 And all of the things that are on, that are stated on the  
16 exterior of the disc, where it's packaging to be in there,  
17 appear to be there. The number of bytes was the same. We  
18 actually examined to make sure that this copy was consistent  
19 with what appears, to my eye, to be the original in the file.

20 Q. And let me hand you --

21 MR. JACOBS: May I?

22 BY MR. JACOBS

23 Q. -- 1077, please. What is 1077?

24 A. The first page is the cover and outer packaging of that  
25 Java 5.0 CD, and the following pages are a copy of the label

1 that's actually physically affixed to the CD, and then the back  
2 of the packaging, which includes some bullet points with the  
3 contents of the CD.

4 **MR. JACOBS:** Your Honor, I offer into evidence 1078  
5 and 1081 and 1077.

6 **MR. BABER:** May I voir dire, your Honor?

7 **THE COURT:** Okay. Just -- yes, you may voir dire.

8 **MR. BABER:** May I approach?

9 **THE COURT:** Yes.

10 **VOIR DIRE**

11 **BY MR. BABER**

12 **Q.** Ms. Dare, may I see again the letter?

13 **A.** You may.

14 **Q.** And we're looking again now at Exhibit 1078; is that  
15 right?

16 **A.** Yes, that's correct.

17 **Q.** Is there anything about the letter which is marked  
18 Exhibit 1078 that indicates that the -- pardon me -- that the  
19 disc that's been marked as 1076 is, in fact, what was submitted  
20 to the Copyright Office?

21 **A.** So the opening paragraph of the letter reads that this  
22 refers to Java Version 5.0, as does that CD-ROM, and it is the  
23 original in mine. However, that is a copy of the original that  
24 appears in my file. And what the submission states is:

25 "This computer program and the end-user



1 documentation are distributed on CD-ROM. We are  
2 submitting as deposit material for this work one  
3 complete copy of the entire CD-ROM package."

4 Q. And can you testify under oath today that the disc that's  
5 been marked as Exhibit 1076 is, in fact, a copy of the disc --  
6 is a copy of disc that was, in fact, sent to the Copyright  
7 Office on December 20th, 2004?

8 A. So I can tell you what my investigation was --

9 Q. "Yes" or "no." Can you testify under oath that that disc  
10 is, in fact, the same as a disc that was or wasn't sent to the  
11 Copyright Office in December of 2004?

12 A. Not with personal knowledge, because I wasn't present on  
13 December 20th, 2004.

14 MR. BABER: Same objection, your Honor.

15 DIRECT EXAMINATION RESUMED

16 BY MR. JACOBS

17 Q. Can you describe your familiarity with Fenwick and West's  
18 filing system? You referred to that earlier.

19 A. Yes, that's correct. I was an associate at the firm for  
20 one year, from August 2006 to 2007 -- I'm sorry, 1996 to 1997.  
21 It's been awhile. And I -- as an associate, I handled many  
22 files. I was in the trademark group. They are all part of the  
23 IP group, and so the files were handled similarly.

24 I have also been working with Fenwick & West, and I  
25 worked with them as my outside counsel when I was at Sun, from

1 August of 1997 through August of 2010. And so I handled many,  
2 many files created by Fenwick. I instructed those files, I  
3 asked for things to be added to those files, et cetera.

4 **Q.** And based on your experience in your work with those  
5 files, when you looked at the files for these two, to what  
6 extent -- for these two applications -- to what extent were the  
7 practices exhibited there consistent with your understanding of  
8 the regular practices at Fenwick & West?

9 **A.** They are fully consistent. All of the practices in terms  
10 of retaining information, organizing the information -- for  
11 example, having the deposit information separate from  
12 correspondence or agreements -- were consistent across the two.

13 **Q.** Based on that, how confident are you that the material you  
14 examined in the files was the material that was actually sent  
15 to the Copyright Office?

16 **MR. BABER:** Objection, your Honor, relevance. It  
17 doesn't lay a foundation.

18 **MR. JACOBS:** Based on her --

19 **MR. BABER:** She doesn't have personal knowledge.

20 **THE COURT:** I'm going to allow the question, but it's  
21 in the nature of a habit and custom and a lay opinion.

22 And the jury will understand that the witness does  
23 not have first-hand knowledge of whether or not that disc was  
24 sent with a letter or not. But, given her testimony about her  
25 relationship to Fenwick & West and to the Sun process and

1 everything else, she can at least give us an opinion.

2 And I'm going to allow the opinion, so go ahead and  
3 ask the question.

4 **A.** I have high confidence, and there was nothing that I  
5 observed that was inconsistent or that made me doubt that what  
6 was in the files was not the copy that's presented here as the  
7 Trial Exhibit.

8 **BY MR. JACOBS**

9 **Q.** And is the same true for 1077, the front and back of the  
10 disc?

11 **A.** That's correct, yes. That was consistent with my  
12 examination.

13 **MR. JACOBS:** Renew our offer into evidence, your  
14 Honor.

15 **THE COURT:** All right. The objection is overruled.  
16 1078 is in evidence.

17 (Trial Exhibit 1078 received  
18 in evidence)

19 **THE COURT:** 1081 in evidence.

20 (Trial Exhibit 1081 received  
21 in evidence)

22 **THE COURT:** What was the other CD?

23 **MR. JACOBS:** 1077 is the front and back of the  
24 packaging, your Honor.

25 **THE COURT:** 1077 in evidence.

1 (Trial Exhibit 1077 received  
2 in evidence)

3 **THE COURT:** But I do have this little caveat for the  
4 jury. You will probably hear more about this in the closing  
5 arguments, so I don't need to say much on this point. But  
6 possibly there is going to be an issue over what was registered  
7 or not registered. And you've seen the fancy thing with the  
8 ribbon, remember that, the registration? And it has some  
9 wording in there. You've seen the applications.

10 Now there is -- there may be an issue over what was  
11 or was not submitted. The letter says it's submitting  
12 something. Apparently one of the applications omits to say  
13 that something was submitted, drawing the possible inference  
14 that it was not submitted. And, in fact, that's a certified  
15 copy.

16 So there is a possible question there as to, was it  
17 submitted to the Copyright Office or was it not submitted.  
18 That's what we have been going through here, is to go back  
19 through these ancient records to have, you know, somebody come  
20 in and put the transmittal letter in.

21 So that's what we've seen. Now, if any of the  
22 lawyers disagree with the way I have characterized the issue,  
23 I'm sorry, I'll let you correct it.

24 Mr. Jacobs?

25 **MR. JACOBS:** I will let matters rest until closing,

1 your Honor.

2 **THE COURT:** How about you, Mr. Baber?

3 **MR. BABER:** No correction, your Honor.

4 **THE COURT:** So can this witness now be excused?

5 **MR. JACOBS:** Insofar as we're concerned, yes.

6 **THE COURT:** Anything more?

7 **MR. BABER:** Nothing for us, your Honor.

8 **THE COURT:** All right. Great.

9 Thank you. Have a great day.

10 **THE WITNESS:** Thank you.

11 (Witness excused)

12 **THE COURT:** Okay. Next witness by Oracle.

13 **MR. NORTON:** Your Honor, I apologize. We have a  
14 matter we would like to take up outside the presence of the  
15 jury.

16 **THE COURT:** How long will it take?

17 **MR. NORTON:** I think, I hope 10 minutes.

18 **THE COURT:** Well, it's a little early for our break,  
19 but we'll take our break early. It's probably for the best to  
20 do it this way.

21 So 15 minutes. Please remember the admonition.

22 **THE CLERK:** All rise.

23 (Jury exits courtroom at 10:41 a.m.)

24 **THE COURT:** All right, be seated.

25 What's the issue?

1           **MR. NORTON:** Your Honor, it concerns the deposition  
2 designations for Vineet Gupta. At the conclusion of the last  
3 break we received the Court's rulings on those. I don't know  
4 that Google received them. The Court excluded all of the  
5 proffered designations for Mr. Gupta under Rule 403, also  
6 lacking foundation.

7           **THE COURT:** And, also, lacking foundation.

8           **MR. NORTON:** Yes, your Honor. And I wanted to  
9 address that.

10          **THE COURT:** Go ahead.

11          **MR. JACOBS:** Mr. Gupta states in the designations  
12 themselves, in his testimony, that he was the person who  
13 developed Sun's overall licensing strategy for Java from the  
14 time, from 2005 -- well, before 2005 and onward. He was a Sun  
15 employee, and that was his responsibility.

16                So he certainly is competent to testify about Sun's  
17 positions with respect to Java licensing.

18                The testimony that we offered --

19          **THE COURT:** But positions don't mean a thing. You  
20 know, both sides have gotten away with murder putting on these  
21 witnesses who spout off platitudes about, it's hard to even  
22 call it custom and usage. And both sides have gotten away with  
23 it, but at some point we have just got to bring this to an end.

24                Why don't you rely on the real documents? Why don't  
25 you rely on real license agreements and real things like what

1 we saw just a few moments ago, as opposed to somebody coming in  
2 and saying, "Oh, it was always our policy, oh, it was always  
3 our practice, to insist on X, Y, Z."

4 And that's just -- we have heard it on both sides  
5 now, but at some point it's got to come to an end. That's the  
6 403 point.

7 **MR. NORTON:** I understand, your Honor. And, of  
8 course, we have submitted a great many documents, but Mr.  
9 Schwartz yesterday was allowed to testify that it was Sun's  
10 policy in licensing Java that, so long as you did not call it  
11 Java, you were free to use the technology.

12 Mr. Gupta, who was in charge of licensing at Sun for  
13 Java, testifies to the contrary. And that is the purpose of  
14 these designations. If Mr. Schwartz was --

15 **THE COURT:** But Mr. McNealy, he was allowed to give  
16 the rebuttal testimony to that. And it was of the same  
17 character. It was just platitudes, as opposed to real  
18 written-down policies anywhere.

19 **MR. NORTON:** Mr. Gupta's testimony is, and this  
20 testimony was given last year --

21 **THE COURT:** Repeat to me the three lines of  
22 testimony, three lines -- or maybe four -- something that's  
23 short and sweet, as opposed to that mishmash that you gave me,  
24 that would be directly on point, and I'll reconsider. But read  
25 it to me now.

1           **MR. NORTON:** Page 68, line 24, to Page 69, line 1.

2 Question, by Mr. Purcell:

3           **"QUESTION:**A licensee was required to pass the TCK,  
4 even if they didn't want to use the Java brand; is  
5 that right?

6           **"ANSWER:**Yes."

7           **THE COURT:** All right. I'll let you read that one  
8 segment.

9           **MR. NORTON:** Thank you, your Honor.

10 May I also read the foundation so the jury knows who  
11 Mr. Gupta is?

12           **THE COURT:** How long is that?

13           **MR. NORTON:** It is from Page 5, Line 20 -- that is  
14 six lines -- and 13 lines from Page 24.

15           **THE COURT:** All right. You can read that.

16           **MR. NORTON:** Thank you, your Honor.

17           **MR. PURCELL:** Through Line 25, actually, your Honor.

18           **MR. NORTON:** Thank you.

19 Mr. Purcell is right.

20           **THE COURT:** Is this going to be your last thing?

21           **MR. NORTON:** No, we will then call Ms. Catz.

22           **THE COURT:** Well, see how much time you have left.

23           **MR. JACOBS:** And if we have time --

24           **MR. NORTON:** I think, by our estimate, we have on the  
25 order of 50, five zero, minutes.



1           **MR. PURCELL:** That's substantially more than our  
2 count, Judge.

3           **THE COURT:** I will tell you what you have left. You  
4 have used by my clock 982 minutes. So you've got 38 minutes  
5 left.

6           **MR. NORTON:** Thank you, your Honor.

7           **MR. PURCELL:** Your Honor, can we get a count for  
8 Google, as well?

9           **THE COURT:** Yes, I will give you that count. You  
10 have used 995 minutes. So, at this point, Google has used more  
11 time than Oracle, which is a first.

12           (Laughter.)

13           **THE COURT:** Anything more?

14           **MR. NORTON:** Not from us, your Honor.

15           **MR. BABER:** Not from us, your Honor.

16           **MR. VAN NEST:** Your Honor, I do have one  
17 housekeeping --

18           **THE COURT:** What is that?

19           **MR. VAN NEST:** That is, I neglected to move into  
20 evidence Trial Exhibit 43.1 during our case. I spoke with  
21 counsel. All it is, is an 8-and-a-half-by-11 version of the --

22           **THE COURT:** Is it agreed upon?

23           **MR. JACOBS:** Yes, your Honor.

24           **THE COURT:** 43.1?

25           **MR. VAN NEST:** 43.1.

1           **THE COURT:** All right. In evidence.

2           (Trial Exhibit 43.1 received  
3           in evidence)

4           **THE COURT:** Let me raise with you something that  
5 comes up in jury instructions that -- have you agreed upon a  
6 stipulated index of the exhibits that will go into the jury  
7 room to help them find things?

8           **MR. JACOBS:** We have not, but we would be happy to.

9           **THE COURT:** All right. You need to do that if you  
10 want it in there. Otherwise, it's just a free-for-all, and  
11 they run through it, trying to do it themselves. The typical  
12 thing would be the exhibit numbers in order with a  
13 non-argumentative statement of what it is.

14           It can't be something like Oracle's confession.

15           (Laughter.)

16           **THE COURT:** It has to be, you know, Oracle license  
17 agreement or something like that. But the thing is this: I  
18 know you all got a lot to do, here is the way a jury trial  
19 works.

20           Whenever it is submitted to -- when the case goes in  
21 to the jury, Dawn will very quickly want to send in to the jury  
22 room the exhibits. It usually takes a few minutes, 10 minutes  
23 or less. I also send in a written copy of the instructions,  
24 that usually takes another 10 minutes, also the verdict form.

25           But lawyers sometimes forget the following, and that

1 is, the jury has no duty to even wait for the special verdict  
2 form. They have no duty to wait and read the exhibits. They  
3 can go into the jury room, take an immediate vote and say,  
4 "We're ready to answer the -- render a verdict."

5 I had a case where it was like 17 minutes. And the  
6 first question that came out was, "Where is the verdict form?"

7 (Laughter.)

8 **THE COURT:** So the reason I bring this up is that, if  
9 you're thinking that there will be a luxurious leisurely  
10 interval where you can bring back an index to the exhibits and  
11 possibly give it to them the next morning, of course you can,  
12 you can give it to them the next morning if they are still  
13 deliberating, but they have the right to render a verdict as  
14 soon as they want. And if you haven't gotten your materials  
15 together in time, that's too bad for the lawyers, I guess.

16 But you -- you must be aware that when the case goes  
17 to them, the case is literally in their hands, including when  
18 they make the decision.

19 So you -- I suspect in a case like this, you would  
20 have some time, but not necessarily. And so I would urge you  
21 to get this index done ahead of time and not wait til the last  
22 minute.

23 Okay.

24 **MR. BABER:** Your Honor, I have an issue that just  
25 occurred to me. I think I marked for identification, and

1 Dr. Astrachan testified about it -- and I think I offered it,  
2 but I'm not sure -- Exhibit 3536, which was the chart that was  
3 Dr. Astrachan's, the results of his analysis of the two  
4 platforms. I would move that into evidence.

5 **MR. JACOBS:** That's a demonstrative only.

6 **THE COURT:** It's a demonstrative thing. That's an  
7 argument piece.

8 Unless the other side had similar things put into  
9 evidence. If you did, I'm willing to let you both put in your  
10 demonstrative items, but it would have to be kind of a -- both  
11 sides get, you know, even treatment on that. But normally  
12 that's just a hearsay document.

13 **MR. BABER:** Fair enough.

14 **THE COURT:** All right. But I do commend that idea to  
15 you. It's an idea only. Not an order. But you might each  
16 want to think of a trade where each of you get your top three  
17 illustrative documents to go into the jury room. And if you  
18 both agreed on that, I would be happy to let you do that, but  
19 otherwise no illustrative documents go into the jury room.

20 See you in 15 minutes.

21 (Whereupon there was a recess in the proceedings  
22 from 10:53 a.m. until 11:05 a.m.)

23 **THE COURT:** Please be seated. Ready to go?

24 **MR. JACOBS:** Yes, sir.

25 **THE COURT:** Let's bring back our jury.

1 When do you think you're going to finish today?

2 **MR. VAN NEST:** 35 plus 28, don't you think?

3 **THE COURT:** That's what I think.

4 **MR. VAN NEST:** That's what I think, too.

5 **THE COURT:** So you're all going to use up every  
6 minute of your time?

7 (Laughter.)

8 **MR. VAN NEST:** I suspect that's true.

9 **THE COURT:** Don't want to leave anything on the  
10 table, huh?

11 **MR. VAN NEST:** We don't get this opportunity every  
12 month, your Honor.

13 **THE COURT:** I read in one of the papers that I had  
14 only given you 17 hours. That was not very true. That was  
15 just for Phase 1. You have, what was the total, 35?

16 **MR. VAN NEST:** 17 plus --

17 **THE COURT:** 17 plus whatever else it is. It's a huge  
18 amount of time.

19 Okay. Let's bring -- are we ready?

20 **MR. JACOBS:** Ready. We're going to call  
21 Dr. Mitchell.

22 **THE CLERK:** All rise.

23 (Jury enters courtroom at 11:07 a.m.)

24 **THE COURT:** Okay, be seated.

25 While you're settling in, I'll let you know, I do

1 think we're going to finish the evidence today and we're on  
2 track. So please continue, as you are, to pay attention.

3 Mr. Jacobs, your next witness, please.

4 **MR. JACOBS:** We call Dr. John Mitchell.

5 **THE COURT:** Dr. Mitchell.

6 There is a note. It says, "Please speak slowly."

7 (Laughter.)

8 **THE COURT:** In this case I will let it stay there.

9 All right. Did we excuse Dr. Mitchell?

10 **MR. JACOBS:** He's an expert, your Honor.

11 **THE COURT:** In other words, do we have to re-swear  
12 him?

13 **JOHN MITCHELL,**

14 called as a witness for the Plaintiff herein, having been  
15 previously sworn, resumed the stand and testified further as  
16 follows:

17 **DIRECT EXAMINATION**

18 **BY MR. JACOBS**

19 **Q.** Dr. Mitchell, you were here during Dr. Astrachan's  
20 testimony?

21 **A.** Yes.

22 **Q.** And you heard him describe the implementation of the code  
23 in the core libraries in Android as completely different from  
24 the code in the corresponding core libraries in Java; do you  
25 recall that?

1 A. Yes, I heard that.

2 Q. And what is your opinion on that question, sir?

3 A. The code may be written differently, it is written to the  
4 same specification. That means it's designed to perform the  
5 same actions, given the same input, and produce the same  
6 output, and, therefore, has the same functionality and intended  
7 behavior for that reason.

8 Q. And what about the Structure, Sequence and Organization of  
9 the code in the Android core libraries as compared with the  
10 Java core libraries?

11 A. The code is organized according to the API, that is the  
12 package structure, the organization of classes within packages,  
13 the organizations of methods within classes, the  
14 interrelationships, the subclass hierarchy, the relationship  
15 between classes and interfaces. All of that is dictated by the  
16 API and represented and repeated in the code.

17 Q. So let's take a look at a slide just to illustrate that  
18 one more time, Dr. Mitchell; 19, please.

19 (Document displayed)

20 MR. JACOBS: And why don't you just do the  
21 highlighting, Mr. Lee?

22 THE CLERK: Before you show it to the jury, I have  
23 Exhibit 19 as not admitted.

24 MR. JACOBS: It's a demonstrative.

25 THE CLERK: I have it as an email.

1           **MR. JACOBS:** I'm sorry, Slide 19.

2           **THE COURT:** Is Dawn supposed to be calling something  
3 up, or is the technician calling it up?

4           **THE CLERK:** I was trying to make sure that I was  
5 pulling up something that was going to be okay to show to the  
6 jury, so I was confirming with Mr. Jacobs what it was.

7           **THE COURT:** It looks like it's a demonstrative,  
8 right?

9           **MR. JACOBS:** That's correct.

10          **THE COURT:** It can be shown to the jury.

11          (Document displayed)

12 **BY MR. JACOBS**

13 **Q.** And this demonstrative has a portion of Trial  
14 Exhibit 610.2 on the left and 46.22 on the right.

15           What is this showing us, Professor Mitchell?

16 **A.** I used this before. This shows on the left the web  
17 display of the Oracle Java API, and on the right half the  
18 Google Android code. The highlighted portions show the  
19 structure in sequence and the organization of the API  
20 represented in the Google Android code through code  
21 declarations that express that organization.

22 **Q.** And this is just one page out of how many, Dr. Mitchell?

23 **A.** There are thousands of pages, if you were to print the  
24 API; many, many more thousands if you were to print the code.  
25 There are 37 packages at issue, 400 classes, 5,000 or more



1 methods. So this is, just really, it's not even the tip of the  
2 iceberg. It's a little bit of snow at the top of the iceberg  
3 or something like that.

4 Q. And snow at the iceberg in terms of what, sir?

5 A. In terms of the number of declarations and the amount of  
6 structure and organization represented in the API.

7 Q. Do you recall the examination of Dr. Astrachan on the  
8 question of a stub implementation, I think it was called? Do  
9 you recall that?

10 A. Yes, I do.

11 Q. And is the stub implementation an accurate depiction of  
12 the similarity between the Android code and the Java  
13 documentation, or the Android code and the Java code?

14 A. I'm really not sure what stub has to do with this. A stub  
15 is a term that refers to, for example, methods without further  
16 implementing code that performs the actions associated with a  
17 method.

18 Q. And what are we looking at here, in looking at this  
19 correspondence?

20 A. These are the declarations that, in the -- on the right,  
21 these are the declarations that, in the source code file, are  
22 followed by additional executable code.

23 Q. And what is this -- so what is this illustrating for the  
24 jury?

25 A. This illustrates the package hierarchy in the first line,

1 the membership of classes in packages in the second line. The  
2 second -- it's actually a few lines as displayed here, but the  
3 second declaration, the declaration of IntBuffer class,  
4 IntBuffer is a subclass of Buffer. It shows that it implements  
5 or is related to the comparable interface from a different  
6 package. And then because of the placement of the declaration  
7 of the allocate method, that declaration is by structure here,  
8 a method within the IntBuffer Class, within the java.nio  
9 package, among the 37 packages at issue.

10 Q. Let's take a look at another one of these. I'm going to  
11 give you a hard copy, Dr. Mitchell, so you don't have to look  
12 at the screen.

13 A. Thank you.

14 (Whereupon, document was tendered  
15 to the witness.)

16 Q. Now, on the left again we have 610.2, and on the right, I  
17 can't read the exhibit number, but we'll get that in a second.

18 Can you tell us what that is showing us,  
19 Dr. Mitchell?

20 A. This is a similar display with a little more information  
21 about the APO specification on the left, and the implementing  
22 code on the right. The API specification on the left explains  
23 the meaning of the declarations, and the code on the right  
24 implements that meaning or achieves the -- meets the  
25 specification through its behavior when compiled and executed.

1           For example, the first box at the top on the left  
2 talks about a constructor, which is a -- like a Method, but  
3 something that creates new objects of a class. And the  
4 specification says, create a new one. Create a new  
5 ProtectionDomain with a given code source and permissions.  
6 "Given" in this context means passed as parameters to the  
7 constructor.

8           On the right, the code implementing that constructor  
9 takes a code source and permissions as parameters and then does  
10 something with them to place their values in the new  
11 ProtectionDomain object that's created by this constructor.

12 **Q.** What is this showing that relates to the question of the  
13 stub implementation?

14 **A.** A stub implementation would just take out the code on the  
15 right. The actual implementation has executable code that's  
16 described by the specification.

17 **Q.** And what's that telling us about how to think about the  
18 level of copying that occurred during the development of  
19 Android?

20 **A.** The declarations on the left are literally copied into the  
21 code, and that represents not just the names, but where they  
22 related as far as the hierarchy of packages, classes, methods,  
23 but also the interrelationships between classes and interfaces  
24 and methods in one package and another. And in addition, the  
25 English specification corresponds to the actual executable code

1 in the implementation because the library here meets its  
2 specification.

3 Q. Now, you also heard some discussion through the trial of  
4 the filing cabinet analogy?

5 A. Yes, I did.

6 Q. The file cabinet is over there, and Google was arguing  
7 that you can analogize the filing cabinet to Allocation  
8 Programming Interfaces. What do you think of that analogy?

9 A. The file cabinet reminds me of a file system. I don't  
10 think it really captures the depth and complexity of the API,  
11 because although we do have packages containing classes,  
12 classes contain methods, that's just the beginning. The  
13 classes implement interfaces. Classes are related in a  
14 subclass hierarchy. That subclass hierarchy can span different  
15 packages, and the packages are hierarchical.

16 There is additional structure that's not represented  
17 that's important, both to programmers who build things using  
18 the API and to implementers of the API that are critical and  
19 part of the complex design and not really captured by the old  
20 gray or tan, or whatever color it is, file cabinet over there.

21 Q. Before we leave slide 20 that's on the screen, the exhibit  
22 on the right is 46.20. But I would now like to put on the  
23 screen a demonstrative, Slide 1.

24 (Document displayed)

25 Q. What is this slide illustrating, Dr. Mitchell?

1 A. This slide gives some of the hierarchical structure. It  
2 shows Classes and Subclasses. And then under Classes the lists  
3 of Methods and the parameter types and return types of some of  
4 those Methods.

5 I think there's some indication here about also  
6 inheritance of Methods, which is another important way that the  
7 subclass hierarchy is related to the list of Methods that  
8 belong to each Class.

9 Q. And what are we actually looking at here? Is this  
10 java.nio?

11 A. This is a piece of that. I believe these are the buffer  
12 kind of classes across the bottom that I believe come from  
13 there. I don't -- it's a little bit -- java.nio is on the  
14 slide here, indicating that some of these Classes are from  
15 that, I believe.

16 (Whereupon, document was tendered  
17 to the witness.)

18 Q. And so what would it take to make the filing cabinet  
19 analogy align with this sets of hierarchical structural  
20 relationships that are illustrated on this slide?

21 A. Well, I mean, one option is toss that and speak of it in  
22 its own terms, which I think makes the most sense to me, as a  
23 computer scientist.

24 Q. What would those terms be?

25 A. The important things are the package, class, method,

1 hierarchical relationship, all of the things that we saw when  
2 we looked at the poster, all the different kind of lines there  
3 and indications.

4           The relationship between classes and interfaces is  
5 extremely important for people building software that uses a  
6 library, because when you know an interface that is implemented  
7 by a number of classes, you can write code that operates on all  
8 objects that support that interface and then write that -- use  
9 that code you've written once on many different classes of  
10 objects. It gives you a lot of efficiency and reusability in  
11 terms of programming.

12           Some other relationships are the package hierarchy.  
13 Some packages are sub-packages of others. When you look at one  
14 Package, it can have Classes in it that are defined in another  
15 Package. We saw these also colored icons indicating that kind  
16 of relationship. Another relationship is when a Method has  
17 parameters, that means it requires data in, in order to produce  
18 data out. Those parameters have types that are Classes that  
19 might be defined in another Package.

20           And so all that --

21 **Q.** Let me interrupt you.

22 **A.** Sure.

23 **Q.** Are we talking now about implementing code or Application  
24 Programming Interface elements?

25 **A.** These are all -- sorry if I went on a little longer.

1 These are all properties and interesting characteristics of  
2 APIs.

3 Q. And so when we're looking at this slide with all these  
4 words and stuff on it, are we looking at API implements  
5 implementing code?

6 A. These are all API elements. The API contains more than is  
7 on this slide, but the information on this slide is all  
8 captured in the -- from the API.

9 Q. And so to comply with this Application Programming  
10 Interface partial specification, what do you know about  
11 Android's Structure, Sequence and Organization as it relates to  
12 the Structure, Sequence and Organization shown on this slide?

13 A. It's the same. It's the same API to the extent the APIs  
14 correspond and they are, as I described earlier, very, very  
15 similar and only differ in very small parts for the  
16 37 packages.

17 Q. Now, the question of compatibility. I think this is,  
18 needs some clarification. You heard some back-and-forth, both  
19 with Google's counsel and with me, from Dr. Astrachan about  
20 when this code would, quote, run on Android and a Java  
21 Platform.

22 Can you explain to the jury, is Android -- is the  
23 Android Platform or the -- let me start over again.

24 Are the Android class libraries compatible with the  
25 Java class libraries?

1 A. I think the point that was illustrated by this code and  
2 Dr. Astrachan's description of it is that, for a given piece of  
3 code such as this Class that he wrote with a marker, it may run  
4 on both platforms if the only things it requires are things  
5 that are common to the two.

6 And so that would be generally true about any  
7 program. If what it requires is the same on both platforms, it  
8 would run on both.

9 Q. Just be clear about run, because we talked about that  
10 also, right?

11 A. There is some issue about how you get things started, and  
12 that's different on the two systems.

13 Q. And what about the question of bytecode format?

14 A. The process of taking the source code and producing  
15 something that runs on the Java Platform and producing  
16 something that runs on the Android Platform is different.

17 Q. And so will an Android application that's been through  
18 that process run on a Java Platform if the portion of the  
19 application programming interface that is common to the two, as  
20 illustrated by this application, is present?

21 A. I mean, the bytecode literally won't run because they are  
22 different bytecode architectures.

23 Q. So in sum, what would you say about the compatibility of  
24 the Android Platform core libraries and the Java core  
25 libraries; are they compatible, incompatible, partially



1 compatible?

2 **A.** They overlap in concept. Beyond the 37 packages, at a  
3 point at which they overlap, they are different and  
4 incompatible, and the way in which things are prepared to run  
5 and execute is different.

6 **Q.** And could one -- could the Android developers having  
7 created their own APIs for all but 61 of the classes in the  
8 37 packages and still be able to use the Java programming  
9 language?

10 **A.** Yeah, sure. I don't see any reason why not. Anyone can  
11 take and build new APIs for old concepts or for new concepts.  
12 That doesn't seem to be an issue at all.

13 **Q.** Thank you, Dr. Mitchell.

14 **THE COURT:** May I just ask one question?  
15 How many classes did you say, 61?

16 **THE WITNESS:** I think he said 61.

17 **THE COURT:** Of the 37, how many -- how many packages  
18 do the 61 fall into?

19 **THE WITNESS:** I think they are within three. They  
20 could be within two. Almost all of them are in java.lang and  
21 then some piece of that. There is one that's in java.io. I  
22 think it's serializable, and I don't remember if there is  
23 another one that comes from another package or not. The bulk  
24 of them are in java.lang.

25 **THE COURT:** Okay. Thank you.

1 All right. Mr. Baber?

2 MR. BABER: Thank you, your Honor.

3 CROSS EXAMINATION

4 BY MR. BABER

5 Q. Good morning, Dr. Mitchell.

6 A. Good morning.

7 Q. I want to start right where Dr. Jacobs left off. And you  
8 were telling him that there was no reason to use these packages  
9 in Android; is that right? They could have just written their  
10 own.

11 A. There are two parts to your question. Certainly, there is  
12 a reason why someone would want to use the same APIs and  
13 packages. It's also possible that someone could, or a group  
14 could easily have, with their -- with the capacity of this  
15 Google team, could have written something different.

16 Q. And what's the reason why you would want to use the same  
17 API specifications?

18 A. These are well-known. They are the result of a  
19 considerable amount of effort designing clear, usable APIs.  
20 They have stood the test of time. A large community of  
21 programmers have found them to be useful. And these 37  
22 Packages, and the hundreds of Classes and thousands of Methods  
23 in them, are known and used in existing code.

24 Q. Well, they are just not well-known. Many programmers who  
25 have been programming in Java for a long time, they have a lot

1 of these Method signatures memorized; don't they, Professor?

2 A. Computer geeks are good at memorizing that kind of stuff,  
3 yes.

4 Q. Do you consider Professor Astrachan to being a computer  
5 geek?

6 A. I don't mean that in a derogatory way.

7 (Laughter.)

8 A. As a compliment, I would say yes.

9 Q. Well, Professor Astrachan used -- how many methods did  
10 Professor Astrachan use in the program that he wrote this  
11 morning?

12 A. I think he used the four that are circled in red. At  
13 least, that's what I remember him saying.

14 Q. As far as you know, did he get them all correct?

15 A. It's not the clearest handwriting, but they look about  
16 right. Let's say that.

17 Q. Okay. And you just said there is a reason to use the same  
18 API spec, which is because these names are known to  
19 programmers, correct?

20 A. That's one reason, that they are attractive.

21 Q. And programmers expect to have these functionalities  
22 available to them when they are writing in the Java programming  
23 language; isn't that right, the functionalities?

24 A. I can't speak to anyone's expectation on a new platform,  
25 but --

1 Q. How about Java, Dr. Mitchell. Let's talk about writing in  
2 the Java language. When a programmer is writing a new program  
3 in the Java language, he or she expects to have available APIs  
4 that will perform all the functions that are in these  
5 37 packages; isn't that right?

6 A. I think if you said write something in Java, that might be  
7 the default assumption, but if you explain more about the  
8 context, someone would happily --

9 Q. And, in fact --

10 MR. JACOBS: Can we let the witness finish his  
11 answer.

12 THE COURT: Yes. Please let the witness finish.  
13 Had you finished your answer?

14 THE WITNESS: I have now, yes.

15 MR. BABER: I apologize, Dr. Mitchell. Just trying  
16 to watch the clock.

17 BY MR. BABER

18 Q. If, instead of using the specifications for the packages  
19 as they are in the Java Platform, and as programmers know them,  
20 if instead you had written completely new APIs, would  
21 programmers be able to access these functionalities using the  
22 names that they have memorized and have used for years?

23 A. The new APIs use different names, then the old names would  
24 not work.

25 Q. So it's true, is it not, Dr. Mitchell, that if you wrote

1 completely new APIs, experienced programmers who wanted to  
2 access well-known functions that are contained in these  
3 37 packages would have to learn completely new names and  
4 wouldn't be able to use what they have been using for years;  
5 isn't that right?

6 **A.** They would have to adapt to the new API. And whatever the  
7 new API gave them, that would be the programming context.

8 **Q.** Okay. Now, you talked about Dr. Astrachan's program down  
9 there that he wrote. And do you recall his testimony about the  
10 entry point for the platform; that there might be a slight  
11 difference between the Java Platform and the Android platform,  
12 as to how you first communicate with a program that someone has  
13 written?

14 **A.** Yes, I do.

15 **Q.** And you agree with what he said about that?

16 **A.** I believe so, yes.

17 **Q.** So is there anything you would do to Dr. Astrachan's  
18 program? If somebody said, "We need this to be executable,  
19 compilable on Android," would you do anything to it, other than  
20 change that word "main," to use the appropriate protocol entry  
21 point for Android?

22 **A.** I think the source code is fine, module of that change.  
23 There are other steps you would follow with that code that are  
24 different.

25 **Q.** So as to the -- as to the three lines of code that

1 Dr. Astrachan wrote -- where he said give it the address, go  
2 get it and read it -- you would expect that code to work on the  
3 Java Platform, correct?

4 **A.** Yes.

5 **Q.** And you would expect it to work on the Android platform,  
6 correct, because it uses the same specifications?

7 **A.** If it uses the same API, and the code meets the same  
8 specifications you would expect the same outcome.

9 **Q.** So as to those four APIs, as to those four method  
10 signatures that Professor Astrachan used in his program, for  
11 those four at least, the Java Platform and the Android platform  
12 are compatible, aren't they?

13 **A.** Yes, that sounds like a great definition of "compatible"  
14 to me.

15 **Q.** Thanks.

16 Mr. Jacobs also asked you about the information in  
17 the source code --

18 **THE COURT:** Do you need some water over there?

19 **JUROR LEE:** No (indicating).

20 **THE COURT:** You have got it.

21 How about a cough drop? You have got it?

22 **JUROR LEE:** Yes.

23 **THE WITNESS:** Makes me thirsty.

24 **THE COURT:** All right. You tell me when you're ready  
25 to go.

1           **JUROR LEE:** I'm good.

2           **THE COURT:** You're good.

3           Okay. Continue on.

4           **MR. BABER:** Could we have 610.1 back on the screen,  
5 please?

6           (Document displayed)

7 **BY MR. BABER**

8 **Q.** I'm sorry, 6102 -- 623, I'm sorry.

9           (Document displayed)

10          **MR. BABER:** I'm sorry, I want 610.2.

11          (Brief pause.)

12          **MR. BABER:** I want the one Mr. Jacobs used with the  
13 witness that had ProtectionDomain on the left and the right.  
14 I believe that is 610.2.

15          (Document displayed)

16 **BY MR. BABER**

17 **Q.** Do you recall just testifying with Mr. Jacobs about this  
18 exhibit, Dr. Mitchell?

19 **A.** Yes, I do.

20 **Q.** Okay. I want to go back.

21          You're familiar with this chart that Dr. Bloch  
22 prepared when he was here in the courtroom?

23 **A.** Yes, our favorite math function for the week.

24 **Q.** Yes, certainly my favorite.

25          Now, on Dr. Bloch's file that he created, it's

1 correct, is it not, that everything above -- above here  
2 (indicating), that's the specification, correct?

3 **A.** That is a portion of the API specification above that  
4 horizontal line.

5 **Q.** And what's missing is the English language words that  
6 describe what this method does, correct? That would also be  
7 part of the specification?

8 **A.** Yes.

9 **Q.** Okay.

10 **A.** Basically.

11 **Q.** Okay. Everything above here is dictated by the  
12 specification, correct? It has to be this way in order to  
13 implement the specification for this method.

14 **A.** Yes.

15 **Q.** And everything below here (indicating) is the code that  
16 implements it, correct?

17 **A.** Yes. According to the English description to satisfy the  
18 specification.

19 **Q.** Okay. So what we have on this chart are two things: We  
20 have what's being implemented, and then we have the  
21 implementation, correct?

22 **A.** That's one way to look at it.

23 **Q.** And when Dr. Astrachan talked about the implementing code  
24 in Android, in the 37 packages, he was referring to the parts  
25 at the bottom; isn't that right? Isn't this the implementing



1 code in all those files?

2 **A.** That's the way I understood what he said. I don't know if  
3 that's what he meant or not.

4 **Q.** Okay. But when you talked to Mr. Jacobs and you looked at  
5 the elements that are shown on 610 -- I'm sorry, whichever  
6 exhibit we have here. It's -- what's on the screen. Those  
7 elements, they are all part of what's up here, right  
8 (indicating), on the top? That's part of what's being  
9 implemented.

10 **A.** Yes. It's also source code.

11 **Q.** It's in the source code file, but is it part of the  
12 implementing code down here, Dr. Mitchell?

13 **A.** Not according to Dr. Astrachan's use, as you characterized  
14 it.

15 **THE COURT:** What about according to your use? I  
16 thought I understood you to say that the implementing code  
17 could be different, right?

18 **THE WITNESS:** Yes. I think maybe the issue is  
19 whether we consider the declaration to be part of the  
20 implementing code or not.

21 **THE COURT:** All right. Well, putting aside the  
22 declaration, all the rest of it could be written in multiple  
23 different ways, right?

24 **THE WITNESS:** Yes.

25 **THE COURT:** All right.

1 BY MR. BABER

2 Q. And just so we're clear, Dr. Mitchell, the parts that you  
3 talked about with Mr. Jacobs that are shown on the screen,  
4 those are not part of the implementing code if you exclude the  
5 declaration, correct?

6 A. Yes.

7 Q. Okay. So do you disagree with Dr. Astrachan that, as to  
8 the implementing code in Android, it is completely different  
9 from the implementing code in the Java Platform?

10 A. Yes, I disagree.

11 Q. Why do you disagree?

12 THE COURT: Wait, wait, wait. He says he disagrees.

13 MR. BABER: I'm going to ask him, your Honor.

14 THE COURT: Go ahead.

15 BY MR. BABER

16 Q. Why do you disagree, Dr. Mitchell?

17 A. For one thing, I would consider the implementing code to  
18 contain the declarations. You don't --

19 Q. Dr. Mitchell, in my question I asked you to assume that  
20 the implementing code does not include the declarations. It's  
21 only the things below this line.

22 MR. JACOBS: Your Honor, actually in the question  
23 that he asked, he didn't state that assumption. It could have  
24 been taken out of context.

25 THE COURT: The question is: Putting aside the

1 declarations, would all of the rest of the implementations be  
2 different in those 37, do you agree with that part?

3 **MR. JACOBS:** Different or completely different? I'm  
4 sorry.

5 **THE COURT:** Different.

6 **THE WITNESS:** They are different. I agree on that.

7 **BY MR. BABER**

8 **Q.** Well, there are no lines of code that are the same, is  
9 that right, Dr. Mitchell? If you exclude the declarations, if  
10 you exclude any part of the specifications and you're looking  
11 only at the implementing code, there are no lines of code that  
12 are the same; isn't that right?

13 **A.** I didn't really go through line-by-line. I would be  
14 really surprised if you couldn't find two lines that were the  
15 same in so much code.

16 **Q.** Well, Dr. Mitchell, in your testimony earlier in the  
17 trial, you identified the nine lines of rangeCheck code,  
18 correct? You had found those amidst the 300,000 line-by-line  
19 lines of code, correct?

20 **A.** Yes.

21 **Q.** And you understand those are not out of Android, they are  
22 not in the current release of Android?

23 **A.** That may be.

24 **Q.** Okay. If they are, assume with me that the rangeCheck  
25 code is out of Android now, and assume with me that those eight

1 test files are also out of Android, wouldn't it be the case,  
2 Dr. Mitchell, that sitting here today you can not identify a  
3 single line of code out of the 300,000 lines in the packages  
4 that would be the same from one platform to the other?

5 **A.** I mean, I'd wager that --

6 **MR. BABER:** Your Honor, the question is a "yes" or  
7 "no."

8 **THE COURT:** Either you can identify for us, and if  
9 the answer is yes, then the next question counsel will ask you  
10 is okay, what is that line of code.

11 So either you can identify one or you can't.

12 **THE WITNESS:** I can't, from recall, identify one for  
13 you.

14 **BY MR. BABER**

15 **Q.** Thank you, Doctor.

16 You testified, and so did Professor Astrachan, about  
17 the stub implementations, correct?

18 **A.** Yes.

19 **Q.** Okay. That's not a new concept, right? Stub  
20 implementations are well-known in the programming field, aren't  
21 they?

22 **A.** Stubs are well-known.

23 **Q.** Okay. And you said that you can do a stub for a method,  
24 correct? And that would be -- just so we're clear, it would be  
25 everything from the specification, but nothing down below

1 (indicating). That would be a stub, right?

2 A. That's what's called a stub, yes.

3 Q. And you can do a stub for a method, but you could also do  
4 a stub for a class, couldn't you?

5 A. I guess. It would be a class without a implementation.

6 Q. Okay. And the stub would have every characteristic of the  
7 specifications and of the design of the package, correct?

8 A. No.

9 Q. Well, what would be missing?

10 A. The specification includes a description of what the  
11 methods are supposed to do, and that's missing from a stub. It  
12 does nothing.

13 Q. Putting aside the English language words that describe as  
14 to the computer code, as to the Java programming language code,  
15 would the stub implementation include everything that you have  
16 identified that contribute to the structure and arrangement of  
17 those packages?

18 A. If I understood your question correctly, yes.

19 Q. So it would show for each method what class it's in and  
20 what package it's in, correct?

21 A. Yes.

22 Q. And the method signatures?

23 A. Yes.

24 Q. And all the characteristics, what goes in, what comes out?

25 A. That's indicated but not achieved.

1 Q. Okay. And you heard Professor Astrachan's testimony about  
2 how many lines of code it would take to create a complete stub  
3 implementation of the 37 packages, didn't you?

4 A. Yes.

5 Q. Do you agree with his analysis?

6 A. It's a reasonable number. 7,000 lines was the number he  
7 gave, I think.

8 Q. And I have used my calculator since Professor Astrachan  
9 was up, and if it is 7,000 lines, out of the 292,988 lines in  
10 those 37 packages, that would be approximately 2.4 percent,  
11 correct? Does that sound about right?

12 A. Sounds about right. Two to three percent.

13 Q. But out of all 166 packages in the Java API, those 7,000  
14 lines would be one-quarter of one percent; isn't that right?

15 A. I believe your calculator, yes.

16 Q. Okay. And you heard Dr. Reinhold's testimony a little  
17 while ago. He said, well, it might be a little more than  
18 7,000, it might be 10,000?

19 A. Could be.

20 Q. And if it was 10,000, it would still be on the same order  
21 of magnitude, right, about three and a half percent compared to  
22 the 37 packages, and about one-third of one percent compared to  
23 the whole 166 packages; isn't that right?

24 A. Okay.

25 Q. Well, one last thing very quickly I want to ask you,

1 Dr. Mitchell, is: For all of these 37 packages, it's true, is  
2 it not, that the source code tells us which version of the Java  
3 Platform that file first appeared in?

4 **A.** I don't recall that, but it may.

5 **Q.** Okay. Do you recall at the top of each file there's  
6 usually a copyright header, and there is a note that says  
7 "since," and it might say "since 1.2," or it might say "since  
8 1.4". Do you recall that?

9 **A.** Yes.

10 **Q.** If it says, for example, "since 1.2," that means that that  
11 file has been in there since Java Version 1.2; isn't that  
12 right?

13 **MR. JACOBS:** Objection, lacks foundation, your Honor.

14 **MR. BABER:** Your Honor --

15 **THE COURT:** If you don't know, just say, "I don't  
16 know."

17 **THE WITNESS:** Yeah, I mean, I don't know how accurate  
18 those are.

19 **BY MR. BABER**

20 **Q.** But that is what they are supposed to indicate, though,  
21 right; you understand that?

22 **MR. JACOBS:** Same objection.

23 **THE WITNESS:** That's a plausible reading as you have  
24 described this.

25

1 BY MR. BABER

2 Q. Do you have any other -- you're an expert in the computer  
3 science field; correct, Doctor?

4 A. Yes.

5 Q. And when you see an indication in a source code file that  
6 says since something, what other explanation would you have for  
7 why that would be there, other than to indicate when that file  
8 first entered that system?

9 A. That seems like the straightforward reading, but I haven't  
10 looked into those indications to see if they are correct and  
11 accurate at all.

12 Q. Sir, last question, or two.

13 (Laughter.)

14 Q. The arrays.java file has been in the Java Platform for a  
15 long time; isn't that right?

16 A. Maybe.

17 Q. The file that rangeCheck is in?

18 A. Yes.

19 Q. All right. And if the source code file for that file says  
20 it's been in the platform from a version prior to 5.0, you  
21 wouldn't -- you wouldn't know when it was added, correct?

22 THE COURT: That's incomprehensible.

23 MR. BABER: Okay. Never mind. No more questions,  
24 your Honor.

25 THE COURT: Well, you can ask the question, but the



1 way you phrased it, doesn't make sense.

2 Okay. Thank you.

3 **MR. BABER:** I think -- let me... I'm good. No more  
4 questions, your Honor.

5 **THE COURT:** No more questions. Thank you.

6 **FURTHER REDIRECT EXAMINATION**

7 **BY MR. JACOBS**

8 **Q.** So from the standpoint of Structure, Sequence and  
9 Organization, Dr. Mitchell, what's the significance of the  
10 7,000 lines that Mr. Baber was asking you about?

11 **A.** Those 7,000 lines of code express that Structure, Sequence  
12 and Organization.

13 **Q.** Thank you.

14 **THE COURT:** Anything more?

15 **MR. BABER:** Nothing, your Honor.

16 **THE COURT:** Dr. Mitchell, thank you. You can have a  
17 seat.

18 (Witness excused.)

19 **THE COURT:** And now anything more?

20 **MR. JACOBS:** Yes, your Honor, we would like to move  
21 into evidence 3215, Google's Form 10-K from 2005, and like to  
22 publish to the jury page --

23 **MR. VAN NEST:** Whoa, whoa, whoa. We have never  
24 discussed this previously, your Honor. I'm not sure it's  
25 disclosed for any witness.

1           **MR. JACOBS:** It's not for a witness. And we did  
2 email them last night and asked them if they would agree to it  
3 coming in. In fact, they agreed to it.

4           **MR. VAN NEST:** This is normally handled with the  
5 housekeeping in the morning, your Honor. And that's why -- and  
6 I would appreciate an opportunity to take a look.

7           **THE COURT:** Well, take a moment and see what the  
8 email says.

9           **MR. VAN NEST:** Fair enough, thank you.

10          **THE COURT:** 3215 is received.

11          (Trial Exhibit 3215 received in evidence)

12          **THE COURT:** You may publish what you would like.

13          **MR. JACOBS:** Page 65.

14          (Document displayed)

15          The section:

16          "More individuals are using non-PC devices to  
17 access the internet, and versions of our WebSearch  
18 technology developed for these services [sic] may not  
19 be widely adopted by users of these devices."

20          **THE COURT:** You said "services," but you meant  
21 "devices"; "developed for these devices."

22          **MR. JACOBS:** Thank you, your Honor.

23          **THE COURT:** All right. Next.

24          **MR. NORTON:** Your Honor, at this time we will offer  
25 deposition testimony from Vineet Gupta.

1           **THE COURT:** All right. Are you just going to read  
2 it?

3           **MR. NORTON:** I am, your Honor.

4           **THE COURT:** Please use the right format, but go right  
5 ahead.

6           **MR. NORTON:** This is the deposition of Vineet Gupta  
7 on July 26.

8 **WHEREUPON:**

9                                   **VINEET GUPTA,**  
10 called as a witness for the Plaintiff herein, testified via  
11 deposition read in open court by Mr. Norton in the presence and  
12 hearing of the jury.

13           By Mr. Purcell:

14           **"QUESTION:**Good morning. Could you state your name  
15 for the record?

16           **"ANSWER:**It's Vineet Gupta.

17           **"QUESTION:**And, Mr. Gupta, thank you for your time  
18 today. Are you a former employee of Sun  
19 Microsystems?

20           **"ANSWER:**Yes.

21           **"QUESTION:**At what point during your time at Sun did  
22 you become part of the team that you just described  
23 that developed Sun's overall licensing strategy for  
24 Java?

25           **"ANSWER:**Don't ask me, too old. I couldn't remember.

1 It's just -- you know, when you've lived it fifteen  
2 years, hard to tell time. And it's been really,  
3 wouldn't know. Just wouldn't know.

4 **"QUESTION:** Could you say that it was before 2005?

5 **"ANSWER:** Yeah, I think so.

6 **"QUESTION:** Okay. So from 2005 onward?

7 **"ANSWER:** At least.

8 **"QUESTION:** You were part of the team responsible for  
9 developing Sun's overall Java licensing strategy?

10 **"ANSWER:** I would say. Could be. Yes.

11 **"QUESTION:** A licensee was required to pass the TCK,  
12 even if they didn't want to use the Java brand; is  
13 that right?

14 **"ANSWER:** Yes."

15 **THE COURT:** Thank you. Anything more?

16 **MR. NORTON:** We call Ms. Catz.

17 **THE COURT:** Ms. Catz.

18 Ms. Catz, welcome. Please raise your right hand.

19 **SAFRA CATZ,**

20 called as a witness for the Plaintiff herein, having been first  
21 duly sworn, was examined and testified as follows:

22 **THE WITNESS:** I do.

23 **THE CLERK:** Okay.

24 **THE COURT:** Okay. All right. You know the drill.

25 You have been here. So you've got to speak right into that

1 mic. Thank you.

2 Go ahead, Mr. Norton.

3 **DIRECT EXAMINATION**

4 **BY MR. NORTON**

5 **Q.** Good morning, Ms. Catz.

6 **A.** Good morning.

7 **Q.** Where are you employed?

8 **A.** I'm employed at Oracle Corporation.

9 **Q.** And how long have you been employed there?

10 **A.** Since 1999.

11 **Q.** And what is your title today at Oracle?

12 **A.** I'm president, I'm chief financial officer, and I'm on the  
13 board of directors.

14 **Q.** And can you explain what it is, what your responsibilities  
15 are as the president and chief financial officer of Oracle?

16 **A.** I run worldwide operations and the entire finance  
17 organization, so the financial aspects of Oracle.

18 **Q.** Now, in your job at Oracle, are you familiar with  
19 something called the Apache Harmony project?

20 **A.** I am.

21 **Q.** To what extent, if any, did Oracle provide any financial  
22 or technical support to the Harmony project?

23 **A.** We never supplied any financial resources, technical  
24 resources, or anything to the Harmony project.

25 **Q.** Now, to what extent, if any, did Oracle ever use anything

1 from the Harmony project?

2 **A.** We never used anything from the Harmony project.

3 **Q.** To what extent, if any, did Oracle ever consider using  
4 anything from the Harmony project?

5 **A.** We never considered it from a -- we didn't need to. We  
6 had our own independent implementation, and we had a license  
7 from Sun for our own implementation.

8 **Q.** During the trial we've heard claims by Google that Oracle  
9 filed this lawsuit only to take advantage of Google's  
10 innovation where Oracle had failed to succeed with Java.

11 **A.** Oh, that couldn't be furtherer from the truth. We never  
12 wanted to be in this litigation with Google.

13 **Q.** Well, what did you do, if anything, before bringing this  
14 lawsuit against Google?

15 **A.** We reached out to Google a number of times trying to get  
16 this matter resolved with them. We met with them. You know, a  
17 number of us met with them at different times.

18 **Q.** Were you involved in any of those meetings?

19 **A.** Yeah. I was informed about the other meetings, but I was  
20 actually involved with one with Alan Eustace, Andy Rubin's boss  
21 at the time.

22 **Q.** Can you explain what it was you were trying to accomplish  
23 by meeting with Google -- approximately when were these  
24 meetings taking place?

25 **A.** Well, we actually acquired Sun in -- in January of 2010.

1 And so after that the -- the meeting I went to Alan Eustace was  
2 almost two years ago now, so June of -- June of 2010 --

3 Q. And what were you trying to accomplish --

4 A. (Continuing) -- May maybe. May, June, something like  
5 that.

6 Q. And in these meetings around May, June, 2010, what was it  
7 that you were trying to accomplish by meeting with Google?

8 A. Well, we had really two objectives. One was to bring  
9 Android on into Java compatibility. That was very, very  
10 critical. The other part was to get Android licensed and  
11 paying for the intellectual property.

12 Q. Now, focusing on the meeting that you had with  
13 Mr. Eustace, to what extent, if at all, did you express  
14 Oracle's position at that meeting on Java licensing for  
15 Android?

16 A. I was actually at that meeting with Thomas Kurian. So it  
17 was the two of us with Alan, and we laid out really a full --

18 MS. ANDERSON: Objection, your Honor, hearsay.

19 THE WITNESS: Oh. Oh, I can say --

20 THE COURT: The -- is that your only objection?

21 MS. ANDERSON: It sounded like, your Honor, the  
22 witness was about to discuss what Oracle representatives were  
23 saying, which is the basis for the hearsay objection, your  
24 Honor.

25 THE COURT: What is the point of this testimony?

1           **MR. NORTON:** Your Honor, in opening and in  
2 questioning, counsel for Google has asserted that the reason  
3 that Oracle brought this lawsuit was solely to make up for its  
4 failure to compete. And that's simply not -- what I hope to  
5 elicit from the witness is what Oracle's motivations were, and,  
6 also, what the statements were that were made by Google  
7 representatives to the witness, but I need to lay the  
8 foundation for those statements.

9           **THE COURT:** Is that your objection, is hearsay?

10          **MS. ANDERSON:** So far, your Honor, yes.

11          **THE COURT:** All right. That will be overruled. That  
12 objection -- the witness is entitled to prove up the contents  
13 of a communication or transaction at which she was present.

14               But I want to say to the jury something. This case  
15 should not be decided based upon who was or was not holding out  
16 for more money or less money or whatever the terms were on  
17 settlement. That has nothing to do with what you are going to  
18 decide in this case, nothing.

19               On every single issue, you've got to decide under the  
20 law who is right and who is wrong. It may be you go one way on  
21 some questions and you go another way on the others. And it  
22 does not matter which, which side was reasonable in  
23 negotiations or not.

24               Let me give you an example. Let's say you have an  
25 automobile accident in which one side wants a lot of money and



1 the other side refuses to pay a lot of money. That is  
2 irrelevant. The jury decides that case based on who was right  
3 or wrong at the traffic intersection and decides the amount of  
4 damages based upon the actual injuries. And it does not matter  
5 that one side held out for their day in court or not. So I  
6 want you to know this is irrelevant testimony.

7 The only reason I'm letting this in is because there  
8 has been a suggestion made that greed is at work here. That  
9 doesn't matter. A party has a right to have their day in court  
10 and to have a fair verdict under the law. And you, the jury,  
11 are going to decide the case based on the law, not on  
12 personalities, not on celebrity witnesses. You're going to go  
13 into the jury room, and you're going to decide this case based  
14 on the law, as it exists under the copyright statute, and the  
15 evidence that's actually been presented here.

16 So if one side in this negotiation we're about to  
17 hear about was reasonable or unreasonable, well, that's  
18 irrelevant. And it's irrelevant -- the motives of the parties  
19 here are irrelevant to your decision. What matters are their  
20 legal rights. And if somebody wants to stand up in court and  
21 say, "I'm going to exercise my rights," good for them. They  
22 may be wrong. They may be right. It's up to you to decide  
23 that.

24 Now, I want to say to you lawyers, I'm going to let  
25 you finish this up because you're right, that suggestion has

1 been made. You can finish the point you were trying to make.  
2 But I want the jury to understand how little it has to do with  
3 this case.

4 Ms. Anderson, what do you have to say to that?

5 **MS. ANDERSON:** Thank you, your Honor. I just have  
6 one more point to make. I do not know precisely what the  
7 witness is about to testify to, but my understanding of this  
8 particular conversation would not involve any particular  
9 numerical references. If there were to be such testimony, I  
10 would object on 403. But that is not my understanding, your  
11 Honor.

12 **THE COURT:** Well, Mr. Norton ought to know me by now.  
13 If I find something I think is out of bounds, Mr. Norton,  
14 really out of bounds, you should not even go there.

15 **MR. NORTON:** I have no intention of coming close to  
16 the boundaries.

17 **THE COURT:** You go ahead and put in the rest of this  
18 conversation. I've eaten up the rest of your time remaining.  
19 You go ahead and I'll extend your time event.

20 **MR. NORTON:** I think I have a few moments in any  
21 event, but thank you, your Honor.

22 **BY MR. NORTON**

23 **Q.** So to what extent, if at all, did you press Oracle's  
24 position to Mr. Eustace at the meeting in June of 2010?

25 **A.** I did. I told him that Android needed to be licensed

1 because of our intellectual property, and that they needed to  
2 become compatible.

3 Q. And did Mr. Eustace have a response?

4 A. He -- he asked -- he asked specifically, what IP?

5 And I said the lawyers would follow up with their  
6 lawyers on that. And we made a -- a financial proposal, and he  
7 was supposed to respond back to us in a little while.

8 Q. And to what extent, if at all, at that meeting was it  
9 discussed whether Google would remove Java altogether from  
10 Android?

11 A. Yeah. He said he -- that they could take Java out of  
12 Android. And I said that's what they would have to do then.

13 MR. NORTON: May I approach?

14 THE COURT: Go ahead.

15 (Whereupon, document was tendered  
16 to the witness.)

17 BY MR. NORTON

18 Q. Ms. Catz, I've handed you Exhibit 1074. Do you recognize  
19 this document?

20 A. Yes. This is the email that Mr. Eustace sent me after I  
21 asked him to send me an email.

22 MR. NORTON: We move the admission 1074.

23 MS. ANDERSON: No objection, your Honor.

24 THE COURT: Thank you. Received in evidence.  
25

1 (Trial Exhibit 1074 received  
2 in evidence)

3 **BY MR. NORTON**

4 **Q.** Now, Mr. Eustace's email to you dated June 28, 2010, he  
5 writes, "Safra."

6 And at the beginning of his email he says:

7 "I have discussed your proposals with Google engineers,  
8 lawyers, founders, and executives, and they are not  
9 acceptable."

10 And then he gives a reason:

11 "We will not pay for code that we are not using,  
12 or license IP that we strongly believe we are not  
13 violating and that you refuse to enumerate."

14 And he goes on to say:

15 "Google engineers spent considerable time and effort building  
16 from scratch open source alternatives to closed systems."

17 Now, other than the reasons stated there, did  
18 Mr. Eustace ever give you any other reasons as to why Google  
19 believed it did not need a license to Java for Android?

20 **A.** No, this is -- these are the reasons he gave me in this  
21 email.

22 **Q.** And in all of your communications with Mr. Eustace to what  
23 extent, if any, did he ever say Google doesn't need a license  
24 to Java because Java is free to use?

25 **A.** He never said that.

1 Q. In all of your communications with Mr. Eustace, did he  
2 ever say Google does not need a license because Jonathan  
3 Schwartz said it was okay, "We approve of Android"?

4 A. No, he didn't say that either.

5 Q. Okay. Did Mr. Eustace express in any of your  
6 communications, if at all, that Google did not need a license  
7 for Java because someone else at Sun or Oracle had approved of  
8 Java and Android?

9 A. No, he never said that.

10 Q. And in your communications with Mr. Eustace, did he ever  
11 say that, to any extent, did he ever say that Google did not  
12 need a license for Java because their use of Java was a fair  
13 use?

14 A. No, he didn't say anything more than this email.

15 Q. Now, after receiving Mr. Eustace's email and before filing  
16 the lawsuit, did you make any further efforts to resolve the  
17 dispute?

18 A. After -- say that again?

19 Q. Sure. After this June 28, 2010 email, and before filing  
20 the lawsuit, did you take any further steps to resolve the  
21 dispute with Google?

22 A. I think there were a few more conversations between  
23 executives.

24 Q. And were those successful?

25 A. No. That's why we're here.

1 Q. All right. And I just want to turn back a little bit in  
2 time to the period after Oracle acquired Sun.

3 Now, after Oracle agreed to acquire Sun in 2009, did  
4 you have any communications with Jonathan Schwartz about the  
5 Sun acquisition?

6 A. I had a few.

7 MR. NORTON: May I approach?

8 THE COURT: Yes.

9 (Whereupon, document was tendered  
10 to the witness.)

11 THE COURT: I believe you're coming up on three  
12 minutes to go.

13 MR. NORTON: That's about what I need. Thank you,  
14 your Honor.

15 BY MR. NORTON

16 Q. The witness has Exhibit 2362, which is already in  
17 evidence.

18 (Document displayed)

19 Q. Now, is this an email that you received from Mr. Schwartz?

20 A. Yes.

21 Q. Now, before and after Oracle's acquisition of Sun, did Mr.  
22 Schwartz ever suggest to you that Sun had approved of Google's  
23 use of Java in Android?

24 A. No.

25 MS. ANDERSON: Objection, hearsay, your Honor.

1           **THE COURT:** Just a moment.

2           **MS. ANDERSON:** These are representatives of the same  
3 company.

4           **THE COURT:** Sustained. That also, under Rule 403,  
5 that the jury will disregard that last question and answer.

6 **BY MR. NORTON**

7 **Q.** If I can draw your attention to 2362, Mr. Schwartz's  
8 email?

9 **A.** I see it.

10 **Q.** Is there a reference in that email to the battles with  
11 Adobe Flash and Google Android?

12 **A.** Yes.

13 **Q.** Is that in Mr. Schwartz's email to you and Mr. Ellison in  
14 2009?

15 **A.** Yes.

16           **MR. NORTON:** No further questions.

17                           **CROSS EXAMINATION**

18 **BY MS. ANDERSON**

19 **Q.** Good afternoon, Ms. Catz.

20 **A.** Hi.

21 **Q.** I'm Christa Anderson for Google. And you may have the  
22 privilege of being one of the last witnesses in this case.

23           Just to begin, you were never employed by Sun  
24 Microsystems, correct?

25 **A.** Correct.

1 Q. You were never a representative of Sun during any of the  
2 communications between Google and Sun, correct?

3 A. Correct.

4 Q. All right. And you have no personal knowledge whatsoever  
5 of anything Sun representatives told Google prior to Oracle's  
6 acquisition of Sun, right?

7 A. Correct.

8 Q. But you are aware, in general, regarding the Java business  
9 at Oracle, true?

10 A. Yes.

11 Q. And you're generally familiar with the income that Oracle  
12 has been generating from the Java business, true?

13 A. Yes.

14 Q. And you know Mr. Risvi, since you have been sitting here  
15 throughout the trial, correct?

16 MR. NORTON: Objection, scope.

17 THE COURT: Well, it may be outside the scope, but  
18 let's see where it's going. So far overruled.

19 MS. ANDERSON: Thank you, your Honor.

20 BY MS. ANDERSON

21 Q. You agree --

22 THE COURT: What's the answer to that question?

23 THE WITNESS: Yes, I know Hasan.

24 MS. ANDERSON: Thank you.

25



1 BY MS. ANDERSON

2 Q. And you agree with Mr. Risvi that the Java business -- the  
3 Java client business has, in fact, been on the increase about  
4 10 percent a year?

5 MR. NORTON: Objection, scope.

6 THE COURT: Sustained.

7 MS. ANDERSON: Thank you.

8 BY MS. ANDERSON

9 Q. Since the point in time that Oracle acquired Sun, you are  
10 aware that Oracle has asserted certain rights against Google in  
11 this case, correct?

12 A. Yes.

13 Q. And you know, because you have been sitting here and heard  
14 Mr. Schwartz, that during the period of time that Mr. Schwartz  
15 was CEO, he reported that he treated the APIs and the Java  
16 language as freely available for use, correct?

17 A. He --

18 THE COURT: You're asking her to tell us what a prior  
19 witness in the trial said?

20 MS. ANDERSON: Yes. Yes, correct, your Honor.

21 THE COURT: Is there any objection to that?

22 (Laughter.)

23 MR. NORTON: Yes, your Honor.

24 THE COURT: Objection is sustained.

25 MS. ANDERSON: Thank you, your Honor.

1 **BY MS. ANDERSON**

2 **Q.** Ms. Catz, you don't have any reason to dispute  
3 Mr. Schwartz's testimony about what his view was of the  
4 policies and practices of Sun prior to the acquisition by  
5 Oracle, do you; you weren't there, right?

6 **MR. NORTON:** Objection.

7 **THE COURT:** Those are two different questions. She  
8 could have gone back and read a lot of emails and have good  
9 reason to dispute that or not. On the other hand, she wasn't  
10 there and could not have first-hand knowledge. You asked two  
11 separate questions.

12 **BY MS. ANDERSON**

13 **Q.** Isn't it true, Ms. Catz, that you have no personal  
14 knowledge to dispute the fact that Mr. Schwartz's reported  
15 policy, as CEO of Sun prior to the acquisition, was to treat  
16 APIs in the Java language as freely available for use, correct?

17 **A.** I almost lost track of your question.

18 **THE COURT:** She is asking if you have any first-hand  
19 knowledge of anything that happened at Sun.

20 And I take it the answer is no, because you never  
21 worked at Sun.

22 **THE WITNESS:** Correct. I was not there.

23 **THE COURT:** That's a non-starter question. That's an  
24 argument.

25 **MS. ANDERSON:** Thank you, your Honor.

1 BY MS. ANDERSON

2 Q. But you do know that, upon Oracle's acquisition, Oracle  
3 sought to assert rights in APIs; is that right?

4 A. We talked about our intellectual property to the different  
5 parts of Java, yes.

6 Q. And that happened after Oracle thought about and decided  
7 not to pursue a Java Phone, right?

8 A. It's after we looked at a Java Phone idea.

9 Q. Right. And Oracle never pursued that, correct?

10 A. No, we did not.

11 Q. Did not pursue it; is that right?

12 A. It's pretty hard to compete with free.

13 Q. Right. And at some point in time, you testified earlier,  
14 that Oracle went to Google and started to demand licensing in  
15 relation to Java; is that right?

16 A. That's right.

17 Q. That was your testimony just a few minutes before,  
18 correct?

19 A. We -- we did.

20 Q. And in Exhibit 1074, which was shown to you by your  
21 counsel, that was the response from Google, right?

22 MS. ANDERSON: Could we please have that up on the  
23 screen, Ben?

24 (Document displayed)

25

1 BY MS. ANDERSON

2 Q. Drawing your attention to that first paragraph,  
3 Mr. Eustace, a representative of Google, told you that google  
4 would not pay for those that it wasn't using; is that right?

5 A. That's what he wrote in that email.

6 Q. And he told you he wasn't going to pay for a license to IP  
7 that he believed Google was not violating, right?

8 A. That's what he wrote.

9 Q. All right. And freely available software is not something  
10 that Oracle has a right to, correct?

11 A. Freely available software?

12 Q. Yes.

13 A. Is not something we have a right to?

14 Q. Do you agree with that statement?

15 A. I think you're -- I'm not sure I get your question.

16 Do we not have a right to freely available software?  
17 We have a right to freely available software as much as any  
18 other company has a right to freely available software.

19 Q. Thank you.

20 And just very briefly, you testified that you are the  
21 president of Oracle currently, correct?

22 A. I'm the president of Oracle Corporation. It's the parent  
23 company of Oracle America in this case.

24 Q. And your compensation is on the order of tens of millions  
25 of dollars annually, correct?

1 A. Yes, I am the true American dream. Coming as an immigrant  
2 to how far I've come is an absolute miracle.

3 Q. And, in fact, today, you have approximately 18 million  
4 shares of either stock or options in Oracle, correct?

5 A. Yes.

6 Q. The only person with more shares and interest in the  
7 financial success of Oracle is Mr. Ellison, correct?

8 A. That's correct.

9 MS. ANDERSON: No further questions. Thank you.

10 THE COURT: All right.

11 MR. NORTON: I have one question, your Honor.

12 THE WITNESS: What if I realized that was not  
13 correct?

14 THE COURT: Go ahead and fix it up.

15 THE WITNESS: I don't think that's true, actually.

16 I think there are a number of folks who have significantly more  
17 Oracle shares personally than I do. I just may be, as far as  
18 employees -- no -- probably as far as employees, but  
19 non-employees have a lot more than I do.

20 MS. ANDERSON: Thank you, ma'am.

21 THE COURT: Mr. Norton, you can have one question.

22 MR. NORTON: Thank you.

23

24

25

**FURTHER DIRECT EXAMINATION**

**BY MR. NORTON**

**Q.** Your discussions with Google concerning enforcing Oracle's intellectual property rights in Java, to what extent did that have anything to do with Oracle's efforts or investigations of having its own Java Phone?

**A.** Oh, it had nothing to do with the Java Phone.

**MR. NORTON:** Thank you.

**THE COURT:** Ms. Catz, you may step down, thank you.

(Witness excused.)

**THE COURT:** Does Oracle rest its rebuttal case?

**MR. NORTON:** We do, we rest.

**THE COURT:** Is there any surrebuttal case?

**MR. VAN NEST:** No, your Honor.

**THE COURT:** All right. We have now reached the end of the road on the evidence for Phase 1. So, just as we have said, lawyers did a great job. It's not even close to 1:00 o'clock, and the evidence for this part is done. So what is left?

Well, let me give you a little heads-up on how that part works. The next thing is to have the closing statements, and that is going to take about three hours altogether, counting both sides. And that's reasonable, because think of all of the things that they need to go back over and cover.

And, in addition, I have to tell you what the law is.

1 And I'm working hard on that in consulting with the lawyers  
2 about what the law, exactly how we trim it down to just the  
3 parts that you need to do your work. And I need to meet with  
4 the lawyers and will be meeting with the lawyers this afternoon  
5 on that subject, and then over the weekend they will be  
6 preparing their closings, and then we will have the closings on  
7 Monday.

8           Then the case will go to you that day. There is a  
9 small chance, I would put it around one out of four, that on  
10 Sunday we will need to get in touch with you to tell you to  
11 slip one day and take Monday off and come in Tuesday. I don't  
12 think that's going to happen. I think we will go forward on  
13 Monday. But in the off-chance that we need to reach you to  
14 postpone you by one day -- in that event you would just take  
15 Monday off and go to work or your normal place of work, or stay  
16 at home or go fishing or whatever you would like to do. But I  
17 need to be able to get in touch with you.

18           So, Dawn, would you go back with the jurors when we  
19 take our recess here and make sure we have a phone number in  
20 the unlikely event we need to do that?

21           I don't know whether that's going to be necessary.  
22 I rather doubt it. I think we're going to go ahead on Monday  
23 as planned, but since there are items I need to go over with  
24 the lawyers to make sure we're ready to go, then I can't be  
25 100 percent on that. I'm only 75 percent on that right now.

1           So you must remember the admonitions. Even though  
2 you've heard all the evidence for this part, you cannot go do  
3 homework or research or look things up on the internet, or let  
4 anyone talk with you about this case. You must continue to  
5 keep an open mind because you will be hearing these arguments  
6 and you don't yet know exactly what the particulars are of the  
7 law. So you've got to wait until you hear all of that. And  
8 then it will be your duty to talk, talk, talk to each other and  
9 to come to an unanimous verdict.

10           Anything more that the lawyers want me to say before  
11 we send the jury home for the weekend?

12           **MR. VAN NEST:** I don't believe so, your Honor.

13           **MR. JACOBS:** No, your Honor.

14           **THE COURT:** All right. So, please. Dawn will go  
15 back with you to make sure she has got all the right phone  
16 numbers. And you all have a wonderful weekend and stay in good  
17 health. Thank you.

18           **THE CLERK:** All rise.

19           (Jury exits courtroom at 12:11 p.m.)

20           **THE COURT:** Okay. Be seated.

21           Any issues for the Court?

22           **MR. JACOBS:** We will be seeing you at?

23           **THE COURT:** Let's move that up. Let's move it to,  
24 instead of 2:15, we gain 45 minutes here, why don't we say  
25 1:45. We'll start at 1:45.



\_\_\_\_\_

E X H I B I T S

<u>TRIAL EXHIBITS</u>	<u>IDEN</u>	<u>VOL.</u>	<u>EVID</u>	<u>VOL.</u>
465, 466, 467, 468, 469			2138	10
470, 471, 472, 477, 478			2138	10
479, 480, 481, 482, 483			2138	10
484, 485, 486, 487, 488			2138	10
623.101			2157	10
47.101			2158	10
1082			2233	10
1076			2238	10
1083, 1084, 1085, 1086			2254	10
1087, and 1088			2254	10
1089			2254	10
1078			2266	10
1081			2266	10
1077			2267	10
43.1			2273	10
3215			2305	10
1074			2315	10

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**CERTIFICATE OF REPORTER**

DEBRA L. PAS, Official Reporter for the United States Court, Northern District of California, hereby certifies that the foregoing proceedings in C 10-3561 WHA, **Oracle America, Inc., vs. Google, Inc.**, were reported by her, certified shorthand reporter, and were thereafter transcribed under her direction into typewriting; that the foregoing is a full, complete and true record of said proceedings at the time of filing.

\_\_\_\_\_  
/s/ Debra L. Pas

Debra L. Pas, CSR #11916, RMR CRR

Friday, April 27, 2012